ORDER NO. SD7706-1237

Service Manual

FM/AM STEREO RECEIVER

SA-5170

(XA), (XAL), (XE), (XGF),
(XSW), (XG), (XGH), (XSD)

SA-5170K

(XGF), (XSW), (XG), (XGH)
(XSD)

* This photo shows only the products for [XA] and [XAL].

* This photo shows the products for other destinations except [XA] and [XAL].
* SA-5170K is different in appearance and colour-tone.
* Cabinet colour differs according to area.

* The model SA-5170 (XA) is available in Asia, Latin America, Middle East and Africa only.
* The model SA-5170 (XAL) is available in Australia only.
* The model SA-5170 (XE) is available in England only.
* The model SA-5170/K (XGF) is available in France only.
* The model SA-5170/K (XSW) is available in Switzerland only.
* The model SA-5170/K (XG) is available in European only.
* The model SA-5170/K (XGH) is available in Holland only.
* The model SA-5170/K (XSD) is available in Scandinavia only.

TECHNICAL SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

[DIN 45 500]

AMPLIFIER SECTION

1 kHz continuous power	
both channels driven	2 x 30 W (4Ω), 2 x 27 W (8Ω)
20 Hz ～ 20 kHz continuous power	
both channels driven	2 x 26W (4Ω), 2 x 25 W (8Ω)
40 Hz ～ 16 kHz continuous power	
both channels driven	2 x 26 W (4Ω), 2 x 25 W (8Ω)
Power bandwidth	
both channels driven at 4Ω, 8Ω	7 Hz ～50 kHz, −3 dB
Total harmonic distortion	
rated power at 1 kHz	0.5% (4Ω, 8Ω)
rated power at 20Hz ～ 20 kHz	0.5% (4Ω, 8Ω)
rated power at 40 Hz ～ 16 kHz	0.5% (4Ω, 8Ω)
−26 dB rated power at 1 kHz	0.25% (4Ω)
50 mW power at 1 kHz	0.25% (4Ω)
Intermodulation distortion	
rated power at 250 Hz: 8000 Hz = 4:1, 4Ω	0.5%
rated power at 60 Hz: 7 kHz = 4:1, SMPTE, 8Ω	0.5%
Damping factor	16 (4Ω), 32 (8Ω)

Input sensitivity and impedance		
PHONO		2.5 mV/47 kΩ
AUX		150 mV/33 kΩ
PLAYBACK, REC/PLAY input		180 mV/39 kΩ
PHONO maximum input voltage (1 kHz, RMS)		130 mV
S/N		
rated power	**PHONO**	65 dB (IHF, A: 78 dB)
	AUX	80 dB (IHF, A: 95 dB)
−26 dB rated power	**PHONO**	55 dB, **AUX** 55 dB
50 mW power output	**PHONO**	55 dB, **AUX** 55 dB
Frequency response	**PHONO**	RIAA standard curve ± 0.5 dB
	AUX	20 Hz ～ 20 kHz, ± 0.5 dB
		10 Hz ～ 35 kHz, −1 dB
Tone controls	**BASS**	50 Hz, +10 dB ～ −10 dB
	TREBLE	10 kHz, +10 dB ～ −10 dB
Loudness control (volume at −30 dB)		50 Hz, +10 dB
Output voltage	**REC OUT**	150 mV
	REC/PLAY output	30 mV
Channel balance (250Hz ～ 6300Hz)		±2.0 dB
Channel separation at 1 kHz		55 dB
Headphones level and output impedance		380 mV/330Ω
Load impedance	**MAIN or REMOTE**	4 ～ 16Ω
	MAIN + REMOTE	8 ～ 16Ω

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

FM TUNER SECTION

Frequency range		88 ∼ 108 MHz
Antenna impedance		300Ω (balanced), 75Ω (unbalanced)
Sensitivity (±40kHz deviation)		1.9μV (IHF: usable) 20μV (IHF, S/N 46 dB, 75Ω, STEREO) 1.9μV (S/N 30 dB, 300Ω) 1.7μV (S/N 26 dB, 300Ω) 1.5μV (S/N 20 dB, 300Ω) 1.3μV (S/N 30 dB, 75Ω) 1.2μV (S/N 26 dB, 75Ω) 0.9μV (S/N 20 dB, 75Ω)
Total harmonic distortion	**MONO**	0.15%
	STEREO	0.3%
S/N (±40kHz deviation)	**MONO**	58 dB (IHF: 75 dB)
	STEREO	55 dB (IHF: 70 dB)
Frequency response		20 Hz ∼ 14 kHz, ±1.5 dB
Alternate channel selectivity (400 kHz)		65 dB
Capture ratio		1.0 dB
Image rejection at 98 MHz		65 dB
IF rejection at 98 MHz		80 dB
Spurious response rejection at 98 MHz		80 dB
AM suppression		55 dB
Stereo separation	**1 kHz** 42 dB, **10 kHz**	35 dB
Leak carrier	**19 kHz** −35 dB, **38 kHz**	−45 dB
Limiting point		1.2μV
Bandwidth	**IF amplifier**	250 kHz
	FM demodulator	1000 kHz
Channel balance (250 Hz ∼ 6300 Hz)		±1.5 dB

AM TUNER SECTION

Frequency range	525 ∼ 1605 kHz
Sensitivity	30μV, 300μV/m
Selectivity	30 dB
Image rejection at 1000 kHz	45 dB
IF rejection at 1000 kHz	40 dB

GENERAL

Power consumption	300 W
Power supply (50 Hz/60Hz)	110 V/120 V/220 V/240V 220V/240V (For United Kingdom) 240V only (For Australia)
Dimensions (W x H x D) for [XA, XAL]	458 x 147 x 295 mm ($18\frac{1}{32}''$ x $5\frac{25}{32}''$ x $11\frac{5}{8}''$)
Dimensions (W x H x D) Except for [XA, XAL]	420 x 142 x 295 mm ($16\frac{17}{32}''$ x $5\frac{19}{32}''$ x $11\frac{5}{8}''$)
Weight for [XA, XAL]	7.8 kg (17.2 lb.)
Weight, Except for [XA, XAL]	7.4 kg (16.3 lb.)

TECHNISCHE DATEN

Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

[DIN 45 500]

VERSTÄRKERTEIL

RMS-Dauertonleistung bei 1 kHz		
beide Kanäle zusammen ausgesteuert		2 x 30 W (4Ω) 2 x 27 W (8Ω)
RMS-Dauertonleistung bei 20 Hz ∼ 20 kHz		
beide Kanäle zusammen ausgesteuert		2 x 26 W (4Ω) 2 x 25 W (8Ω)
RMS-Dauertonleistung bei 40 Hz ∼ 16 kHz		
beide Kanäle zusammen ausgesteuert		2 x 26 W (4Ω) 2 x 25 W (8Ω)
Leistungsbandbreite		
beide Kanäle ausgesteuert bei 4Ω, 8Ω		7 Hz ∼ 50 kHz, −3 dB
Harmonische Verzerrungen		
Nennleistung bei 1 kHz		0.5% (4Ω, 8Ω)
Nennleistung bei 20 Hz ∼ 20 kHz		0.5% (4Ω, 8Ω)
Nennleistung bei 40 Hz ∼ 16 kHz		0.5% (4Ω, 8Ω)
−26 dB Ausgangsleistung bei 1 kHz		0.25% (4Ω)
50 mW Ausgangsleistung bei 1 kHz		0.25% (4Ω)
Intermodulationsverzerrung		
Nennleistung bei 250 Hz: 8000 Hz=4:1, 4Ω		0.5%
Nennleistung bei 60 Hz:7 kHz=4:1, 8Ω		0.5%
Dämpfungsfaktor		16 (4Ω), 32 (8Ω)
Eingangsempfindlichkeit & Impedanz		
PHONO		2.5 mV/47 kΩ
AUX		150 mV/33 kΩ
PLAYBACK, REC/PLAY Eingang		180 mV/39 kΩ
PHONO Maximale Eingangsspannungen (1 kHz RMS)		130 mV
Fremdspannungsabstand		
Nennleistung	**PHONO**	65 dB (IHF, A: 78 dB)
	AUX	80 dB (IHF, A: 95 dB)
−26 dB Ausgangsleistung	**PHONO, AUX**	55 dB
50 mW Ausgangsleistung	**PHONO, AUX**	55 dB
Frequenzgang	**PHONO**	RIAA Standardkurve ±0.5 dB
	AUX	20 Hz ∼ 20 kHz, ±0.5 dB 10 Hz ∼ 35 kHz, −1 dB
Klangregler	**BÄSSE**	50 Hz, +10 dB ∼ −10 dB
	HÖHEN	10 kHz, +10 dB ∼ −10 dB
Gehörgerechte Lautstärkekorrektur (Lautstärke bei −30 dB)		50Hz, +10 dB
Ausgangsspannungen	**REC OUT**	150 mV
	REC/PLAY Aufnahme	30 mV
Kanalabweichung (250Hz ∼ 6300Hz)		±2.0 dB
Kanaltrennung bei 1 kHz		55 dB
Kopfhörerpegel und Ausgangsimpedanz		380 mV/330Ω
Endimpedanz	**MAIN oder REMOTE**	4 ∼ 16Ω
	MAIN und REMOTE	8 ∼ 16Ω

UKW-TUNERTEIL

Empfangsbereich		88 ∼ 108 MHz
Antennenanschluss		300Ω (symmetrisch), 75Ω (asymmetrisch)
Empfindlichkeit (±40 kHz Hub)		1.9μV (IHF) 20μV (IHF, 46 dB Fremdspannungsabstand, 75Ω, STEREO) 1.9μV (30 dB Fremdspannungsabstand, 300Ω) 1.7μV (26 dB Fremdspannungsabstand, 300Ω) 1.5μV (20 dB Fremdspannungsabstand, 300Ω) 1,3μV (30 dB Fremdspannungsabstand, 75Ω) 1.2μV (26 dB Fremdspannungsabstand, 75Ω) 0.9μV (20 dB Fremdspannungsabstand, 75Ω)
Harmonische Verzerrung	**MONO**	0.15%
	STEREO	0.3%
Fremdspannungsabstand (±40 kHz Hub)		
	MONO	58 dB (IHF: 75 dB)
	STEREO	55 dB (IHF: 70 dB)
Frequenzgang		20 Hz ∼ 14 kHz, ±1,5 dB
Selektivität (400 kHz)		65 dB
Gleichwellen-Selektion		1.0 dB
Spiegelselektion bei 98 MHz		65 dB
ZF-Festigkeit bei 98 MHz		80 dB
Unselektivitätsfestigkeit bei 98 MHz		80 dB
AM-Unterdrückung		55 dB
Stereo Ubersprechdämpfung	**1 kHz** 42 dB, **10 kHz**	35 dB
Trägerrest	**19 kHz** −35 dB, **38 kHz**	−45 dB
Begrenzung, Einsatzpunkt		1.2μV
Bandbreite ZF-Verstärker		250 kHz
	UKW-Demodulator	1000 kHz
Kanalabweichung (250 Hz ∼ 6300 Hz)		±1.5 dB

MW-TUNERTEIL

Empfangsbereich	525 ∼ 1605 kHz
Empfindlichkeit	30μV, 300μV/m
Selektivität	30 dB
Spiegelselektion bei 1000 kHz	45 dB
ZF-Festigkeit bei 1000 kHz	40 dB

ALLGEMEINE DATEN

Leistungsaufnahme	300 W
Netzspannung umschaltbar (50 Hz/60Hz)	110 V/120 V/220 V/240 V
Abmessungen (B x H x T)	420 x 142 x 295 mm
Gewicht	7.4 kg

CARACTERISTICS TECHIQUES

Sujet à changement sans préaris.

[DIN 45 500]

SECTION AMPLIFICATEUR

Puissance RMS (continue) de 1 kHz	
pour l'ensemble des canaux excités	2 x 30 W (4Ω) 2 x 27 W (8Ω)
Puissance RMS (continue) de 20 Hz à 20 kHz	
pour l'ensemble des canaux excités	2 x 26 W (4Ω) 2 x 25 W (8Ω)
Puissance RMS (continue) de 40 Hz à 16 kHz	
pour l'ensemble des canaux excités	2 x 26 W (4Ω) 2 x 25 W (8Ω)
Largeur de bande de puissance	
pour l'ensemble des canaux excites 4Ω, 8Ω	7 Hz ∼ 50 kHz, −3 dB
Distorsion harmonique totale	
pour la puissance mesurée á 1 kHz	0.5%(4Ω, 8Ω)
pour la puissance mesurée à 20 Hz ∼ 20 kHz	0.5%(4Ω, 8Ω)
pour la puissance mesurée à 40 Hz ∼ 16 kHz	0.5%(4Ω, 8Ω)
pour une puissance mesurée de −26 dB, 1 kHz	0.25%(4Ω)
pour une puissance mesurée de 50 mW, 1 kHz	0.25%(4Ω)
Distorsion d'intermodulation	
pour la puissance mesurée à 250 Hz: 8 kHz = 4:1, 4Ω	0.5%
pour la puissance mesurée à 60 Hz: 7 kHz = 4: 1, 8Ω	0.5%
Facteur d'amortissement	16 (4Ω), 32 (8Ω)

Sensibilité & impédance d'enltrée		
PHONO		2.5 mV/47 kΩ
AUX		150 mV/33 kΩ
PLAYBACK, REC/PLAY entrée		180 mV/39 kΩ
Voltage d'entrée maximum (PHONO, 1 kHz, RMS)		130 mV
Signal/bruit		
Pour la puissance nominale	**PHONO**	65 dB (IHF, A: 78 dB)
	AUX	80 dB (IHF, A: 95 dB)
Pour une sortie de −26dB	**PHONO, AUX**	55 dB
pour une sortie de 50 mW	**PHONO, AUX**	55 dB
Réponse de fréquence		
PHONO		Courbe standard RIAA ±0.5 dB
AUX		20 Hz ∼ 20 kHz, ±0.5 dB 10 Hz ∼ 35 kHz, −1 dB
Réglage de la tonalité		
BASS (graves)		50 Hz, +10 dB ∼ −10 dB
TREBLE (aigus)		10 kHz, +10 dB ∼ −10 dB
Contrôle d'intensité sonore (volume à −30 dB)		50 Hz, +10 dB
Tension de sortie	**REC OUT**	150 mV
	REC/PLAY (sortie)	30 mV
Equilibrage de canaux (250 Hz ∼ 6300 Hz)		±2.0 dB
Ecart canaux à 1 kHz		55 dB
Niveau des ecouteurs et impédance de sortie		380 mV/330Ω
Impédance de charge	**PRINCIPALE ou ELOIGNEE**	4 ∼ 16Ω
	PRINCIPALE + ELOIGNEE	8 ∼ 16Ω

SECTION TUNER FM

Gamme de fréquences		88 ∼ 108 MHz
Impédance d'antenne		300Ω (symétrique) 75Ω (asymétrique)
Sensibilité (±40 kHz déviation)		1.9μV (IHF, utilisable) 20μV (IHF, signal/bruit 46 dB, 75Ω, STEREO) 1.9μV (Signal/bruit 30 dB, 300Ω) 1.7μV (Signal/bruit 26 dB, 300Ω) 1.5μV (Signal/bruit 20 dB, 300Ω) 1.3μV (Signal/bruit 30 dB, 75Ω) 1.2μV (Signal/bruit 26 dB, 75Ω) 0.9μV (Signal/bruit 20 dB, 75Ω)
Distorsion harmonique totale	**MONO**	0.15%
	STEREO	0.3%
Signal/bruit (±40 kHz déviation)	**MONO**	58 dB (IHF: 75 dB)
	STEREO	55 dB (IHF: 70 dB)
Réponse de fréquence		20 Hz ∼ 14 kHz, ±1.5 dB
Sélectivite alternée par canal (400 kHz)		65 dB
Taux de capture		1,0 dB
Rejet d'image (à 98 MHz)		65 dB
Rejet FI (à 98 MHz)		80 dB
Rejet de réponse parasite (à 98 MHz)		80 dB
Suppression AM		55 dB
Séparation stéréophonique		**1 kHz** 42 dB, **10 kHz** 35 dB
Courant porteur de dispersion		**19 kHz** −35 dB, **38 kHz**,−45 dB
Point limite		1.2μV
Largeur de bande	**Amplificateur FI**	250 kHz
	Démodulateur FM	1000 kHz
Equilibrage de canaux (250 Hz ∼ 6300 Hz)		±1.5 dB

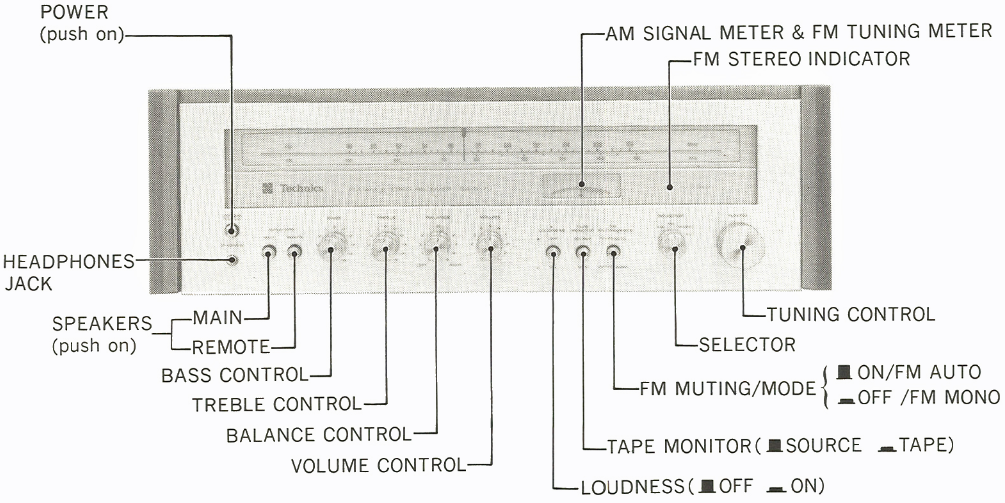
SECTION TUNER AM

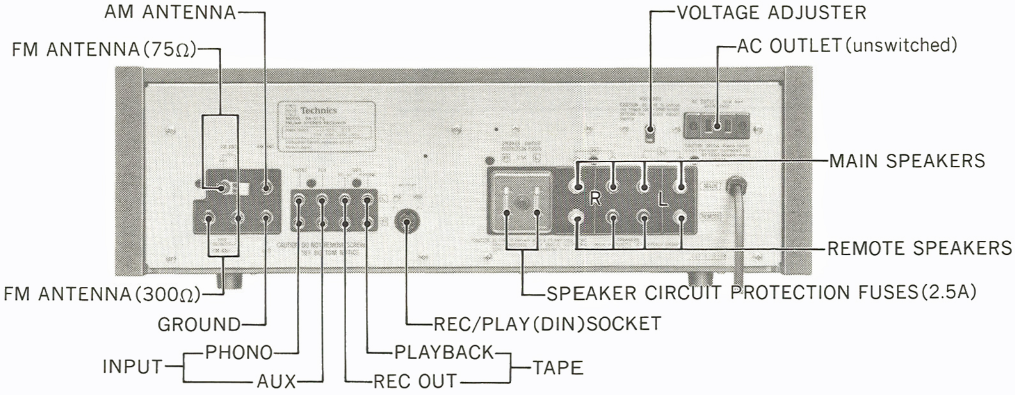
Gammr de fréquence	525 ∼ 1605 kHz
Sensibilité	30μV, 300μV/m
Sélectivité	30 dB
Rejet d'image (à 1000 kHz)	45 dB
Rejet FI (à 1000 kHz)	40 dB

GENERALITES

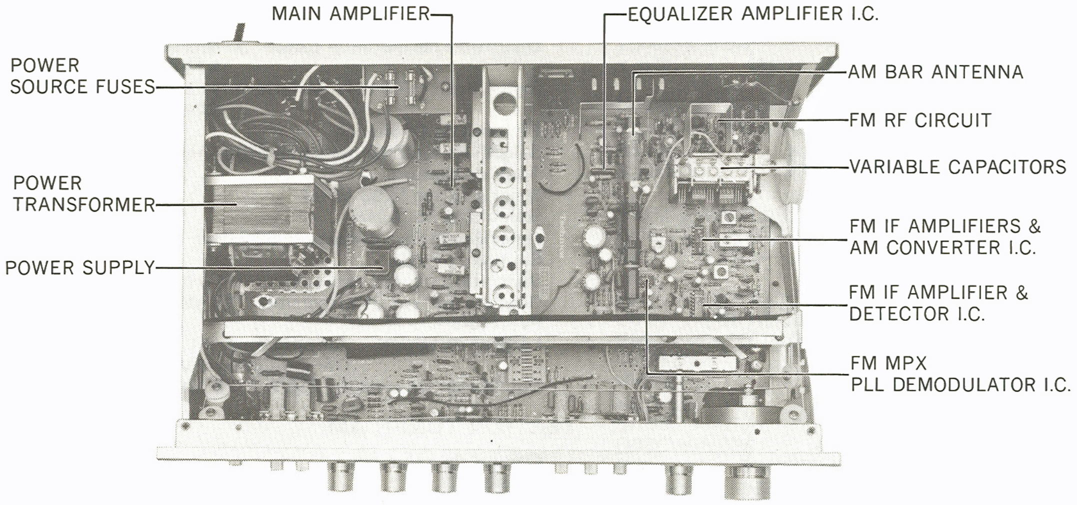
Consommation	300 W
Alimentation (50 Hz/60Hz)	110 V/120 V/220 V/240 V
Dimensions (L x H x Pr)	420 x 142 x 295 mm
Poids	7.4 kg

■ LOCATION OF CONTROLS


POWER (push on)
AM SIGNAL METER & FM TUNING METER
FM STEREO INDICATOR
Technics
HEADPHONES JACK
SPEAKERS (push on)
MAIN
REMOTE
BASS CONTROL
TREBLE CONTROL
BALANCE CONTROL
VOLUME CONTROL
TUNING CONTROL
SELECTOR
FM MUTING/MODE
■ON/FM AUTO
▁OFF /FM MONO
TAPE MONITOR(■SOURCE ▁TAPE)
LOUDNESS(■OFF ▁ON)


AM ANTENNA
FM ANTENNA(75Ω)
VOLTAGE ADJUSTER
AC OUTLET(unswitched)
Technics
MAIN SPEAKERS
R
L
REMOTE SPEAKERS
FM ANTENNA(300Ω)
GROUND
SPEAKER CIRCUIT PROTECTION FUSES(2.5A)
REC/PLAY(DIN)SOCKET
INPUT
PHONO
AUX
PLAYBACK
REC OUT
TAPE

- * This photo shows only the products for [XA].
- * The products for other destinations except [XA] are not equipped with AC outlet.
- * For further remark, the products for [XAL] are not provided with voltage adjuster and AC outlet.


MAIN AMPLIFIER
EQUALIZER AMPLIFIER I.C.
POWER SOURCE FUSES
AM BAR ANTENNA
FM RF CIRCUIT
POWER TRANSFORMER
VARIABLE CAPACITORS
FM IF AMPLIFIERS & AM CONVERTER I.C.
POWER SUPPLY
FM IF AMPLIFIER & DETECTOR I.C.
FM MPX PLL DEMODULATOR I.C.

■ SPEAKER CIRCUIT PROTECTION FUSES

The unit is provided with the speaker circuit protection fuses at the right and left channels respectively.
The fuse is to prevent the power transistor from destruction, should the speaker terminals be short-circuited.
Accordingly, if the unit fails to function upon completion of the speaker connections, check the speaker protection fuses first of all for possible blowing.

■ ALIGNMENT POINTS

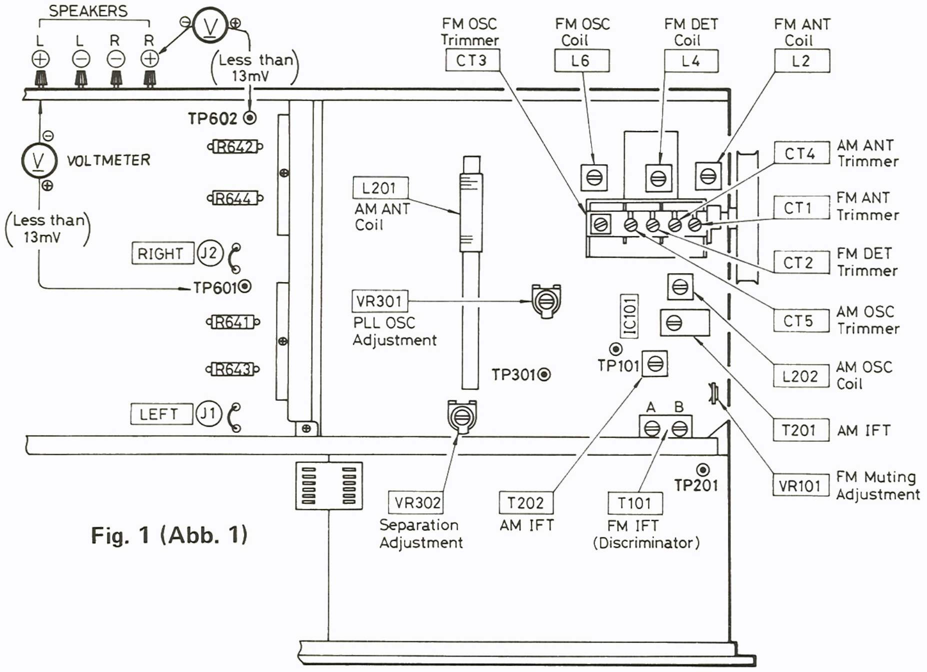
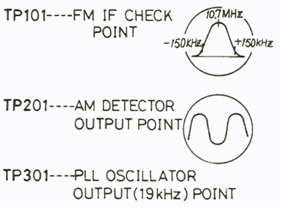
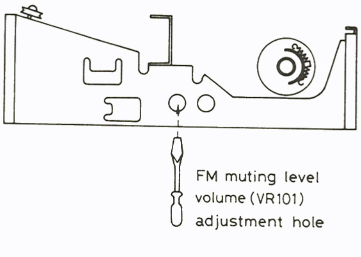
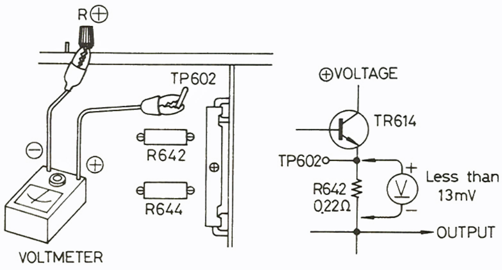

SPEAKERS
L L R R
⊕ ⊖ ⊖ ⊕
V
Less than 13mV
TP602
R642
R644
VOLTMETER
Less than 13mV
RIGHT J2
TP601
R641
R643
LEFT J1
FM OSC Trimmer CT3
FM OSC Coil L6
FM DET Coil L4
FM ANT Coil L2
L201 AM ANT Coil
VR301 PLL OSC Adjustment
TP301
IC101
TP101
CT4 AM ANT Trimmer
CT1 FM ANT Trimmer
CT2 FM DET Trimmer
CT5 AM OSC Trimmer
L202 AM OSC Coil
T201 AM IFT
VR101 FM Muting Adjustment
A B
TP201
VR302 Separation Adjustment
T202 AM IFT
T101 FM IFT (Discriminator)

Fig. 1 (Abb. 1)

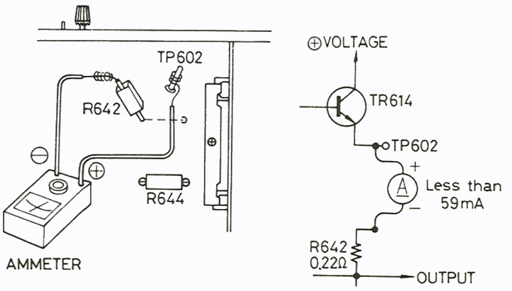

TP101----FM IF CHECK POINT
10.7MHz
-150kHz
+150kHz
TP201----AM DETECTOR OUTPUT POINT
TP301----PLL OSCILLATOR OUTPUT(19kHz) POINT


FM muting level volume (VR101) adjustment hole


R⊕
TP602
⊖
⊕
R642
R644
VOLTMETER
⊕VOLTAGE
TR614
TP602
R642 0.22Ω
+
V
−
Less than 13mV
OUTPUT

Voltage check method
(Stromspannung-prüfmethode)
Méthode de vérification de tension

Fig. 2 (Abb. 2)


TP602
R642
⊖
⊕
R644
AMMETER
⊕VOLTAGE
TR614
TP602
+
A
−
Less than 59mA
R642 0.22Ω
OUTPUT

Current check method
(Stromstärke-Prüfmethode)
Méthode de vérification de courant

Fig. 3 (Abb. 3)

■ TO REMOVE CABINET

(Products for [XA] and [XAL] only)

1. Remove four (4) cabinet-mounting screws (① ~ ④), as shown in fig.4.
2. Remove cabinet from chassis.
3. When installing the front panel, insert the cabinet edge into grove of front panel as shown in fig.5.

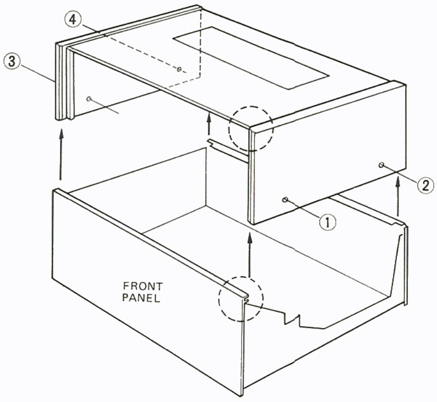


Fig. 4

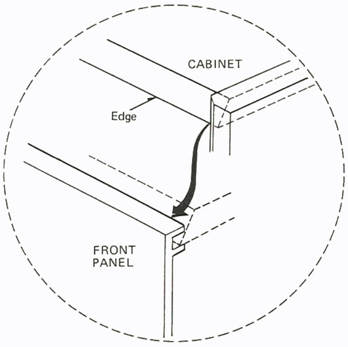


Fig. 5

■ TO REMOVE BOTTOM BOARD

1. Remove eight (8) bottom board-mounting screws (① ~⑧), as shown in fig. 6.
2. When the bottom board is to be removed for repair, never remove any screws other than set screws for the bottom board. Energization of the unit with screws other than the bottom board set screws removed may result in troubles in the circuit.

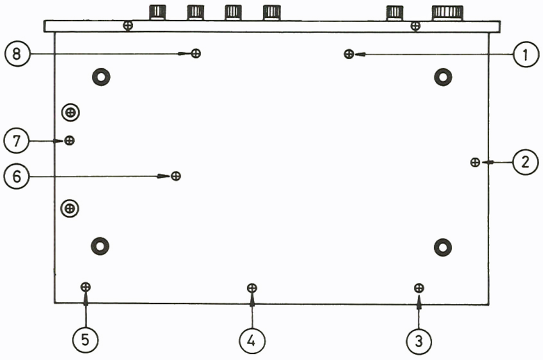


Fig. 6

■ ALIGNMENT INSTRUCTIONS... MAIN AMPLIFIER CIRCUIT

- When the power transistor is replaced, be sure to apply silicone compound (or equivalent thermal diffusion agent) onto the mica plate, and at the same time confirm the idling current of the power transistor. (measure voltage across the emitter resistance)

Ⓐ **For adjustment with DC voltmeter**

1. Turn the speaker switch "OFF".
2. Connect the DC voltmeter as shown in "Alignment Points".
3. If the reading is under 13mV approximately several minutes after turning ON the power supply, the circuit is "OK". On the other hand, if the reading is over 13mV, cut off the lead wire for (J1) in the case of left channel (The lead wire for (J2) in the case of right channel).
4. Should the reading not fall under 13mV even when the lead wire has been cut off, there is something wrong with the circuit, and therefore, check the power source circuit or main amplifier circuit.

NOTE: When cutting off the lead wire, cut off the same at the root.

Ⓑ **Current should be checked only when adjustment is made with a tester.** (measuring instrument incapable of measuring voltage in mV unit.)

1. Turn OFF the power supply for the set.
2. Connect the ammeter as shown in Fig. 3 (Case of right channel).
3. After ensuring that the ammeter will not come off, turn ON the power supply.
4. If the reading is under 59mA after several minutes (But, when nothing resistance of internal resistor by ammeter) the circuit is "OK". If over 59mA, cut off the lead wire for (J1) in the case of left channel (The lead wire for (J2) in the case of right channel).
5. If the reading does not fall under 59mA, there is something wrong with the circuit.

NOTE: The adjustment may be made either by Ⓐ or by Ⓑ method. (We recommend the method Ⓐ where possible). Figs. 2 and 3 are related to the case of right channel.

■ ALIGNMENT INSTRUCTIONS ... FM AND AM TUNER CIRCUIT

NOTE For adjustment, proceed with the bottom board attached as it is.

Notes:
1. Selector switch .... {AM (AM Alignment)
FM (FM Alignment)
2. FM Muting / mode switch....... on/FM auto
3. Maintain line voltage at rated voltage.
4. Tape monitor switch .... Source
5. Speakers switch .... MAIN and REMOTE to ON
6. Volume control ....Variable
7. Output of signal generator should be no higher than necessary to obtain an output reading.
8. 300Ω FM dummy antenna ..... Refer to fig. 7.

	AM/FM SIGNAL GENERATOR		DIAL SETTING	INDICATOR (VTVM or SCOPE) (DISTORTION METER)	ADJUSTMENT POINTS	REMARKS
	CONNECTION	FREQUENCY				
	AM ALIGNMENT					
1	AM signal generator high side through 0.001μF to AM antenna trimmer terminal.	455kHz (30% Mod. with 400Hz) [Set for England to 470kHz]	Point of non-inter-ference	Connect VTVM or scope to speaker terminal (L or R) or TP201 of set.	T201 (1st IFT) T202 (2nd IFT)	Adjust for maximum output.
2	Fashion loop of several turns of wire and radiate signal into loop of receiver.	600kHz (30% Mod. with 400Hz)	600kHz	Connect VTVM or scope to speaker terminal (L or R) or TP201 of set.	L202 (OSC Coil) L201 (ANT Coil)	Adjust for maximum output. Adjust L201 by moving coil bobbin along ferrite core.
3	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1500kHz (30% Mod. with 400Hz)	1500kHz	Connect VTVM or scope to speaker terminal (L or R) or TP201 of set.	CT5 (OSC Trimmer) CT4 (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
	FM IF ALIGNMENT					
4		No signal	Point of non-inter-ference	FM Tuning meter of set	T101 (Discri IFT) Primary [A]	Adjust for center of tuning meter indi-cation.
	FM RF ALIGNMENT					
5	Connect FM signal gene-rator to 300Ω FM antenna terminals through FM dummy antenna.	90MHz (100% Mod. with 400Hz)	90MHz	Connect VTVM or scope to speaker terminal (L or R) or TP101 of set.	L6 (OSC Coil) L4 (DET Coil) L1 (ANT Coil)	Adjust for maximum output.
6	Connect FM signal gene-rator to 300Ω FM antenna terminals through FM dummy antenna.	106MHz (100% Mod. with 400Hz)	106MHz	Connect VTVM or scope to speaker terminal (L or R) or TP101 of set.	CT3 (OSC Trimmer) CT2 (DET Trimmer) CT1 (ANT Trimmer)	Adjust for maximum output. Repeat steps (5) and (6).
	FM MONO DISTORTION ALIGNMENT					
7	Connect FM signal gene-rator to 300Ω FM antenna terminals through FM dummy antenna.	100MHz (100% Mod. with 400Hz)	100MHz	Connect distortion meter to speaker terminal (L) of set.	T101 (Discri IFT) Secondary [B]	Tuning at 100MHz and adjust for mini-mum distortion. Repeat steps (4) and (7).
	FM MUTING LEVEL ALIGNMENT					
8	Connect FM signal gene-rator to 300Ω FM antenna terminals through FM dummy antenna. Apply 16dB (6.3μV) to set. SG indication are 28dB (IHF)	100MHz (100% Mod. with 400Hz)	100MHz	Connect VTVM or scope to speaker (L or R) terminal of set.	VR101	Muting switch to "on" Adjust so that output can be obtained.

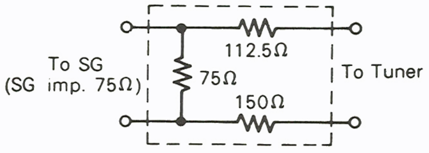
FM MPX PILOT ALIGNMENT

	Using a frequency counter	Using alternate system
9	1. 98MHz Non-modulated mono signal applied to set. 2. FM Muting/Mode switch to "on/FM auto". 3. Connect frequency counter to **TP301** through resistor (100 kΩ). 4 Adjust **VR301** to 19kHz ±30Hz.	1. Apply stereo signal from generator or stereo station to receiver. 2. Adjust **VR301** until stereo indicator lights up. Cement arm of **VR301** as shown in fig. 8.

STEREO SEPARATION ALIGNMENT

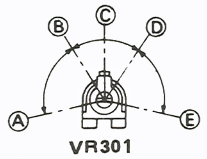
Notes:
1. Stereo modulator .... • Connect stereo modulator output to EXT. MOD. terminal of signal generator.
   • Internal OSC ..... 1kHz • Pilot signal modulation 10%
2. FM signal generator .... • Frequency approximately 98MHz. • Output level to 72dB (IHF)
   • Modulation mode to FM
3. Band selector switch .... FM
4. FM Muting / mode switch .... on/FM auto

	FM SIGNAL GENERATOR CONNECTION	STEREO MODULATOR MODE AND MOD. RATE	INDICATOR (VTVM or SCOPE)	ADJUSTMENT POINT	REMARK
10	300Ω FM antenna terminals through FM dummy antenna	L (and R) 30% Modulation	Connect VTVM or scope to output terminals through low pass filter. Refer to fig. 9.	VR302	Adjust for minimum **right** (and left) output



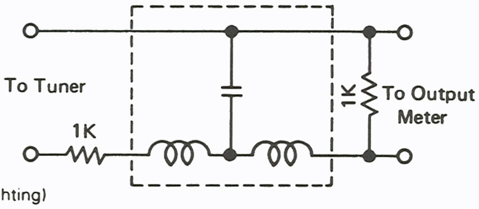
300Ω FM Dummy Antenna

Fig. 7 (Abb. 7)



A – B, D – E: Stereo OFF Position.
B – D: Stereo ON Position (Indicator Lighting)
C: Adjust Point of Pilot Circuit.

Fig. 8 (Abb. 8)



LOW PASS FILTER
(fc = 15kHz ~19kHz)

Fig. 9 (Abb. 9)

■ ABGLEICHANWEISUNGEN (Verstär kerteil)

- Wenn der Netztransistor ersetzt wird, ist zu beachten, daß eine Siliziumverbindung (oder ähnliches Thermodiffusionsmittel) auf die Glimmerplatte gegeben wird, und zur gleichen Zeit der Blindstrom des Netztransistors festgestellt wird.. (Die Spannung über den Emitterwiderstand messen.)

Ⓐ **Zum Justieren mit dem Gleichstrom-Voltmeter**

1. Drehen Sie den Lautsprecherschalter auf "OFF".
2. Schließen Sie den Gleichstrom-Voltmeter an, wie in Abb. 7 des Justrerpunkte-Diagramms gezeigt.
3. Falls die Anzeige weniger als ca. 13 mV beträgt, so ist die Schaltung in Ordnung. Falls aber die Anzeige mehr als 25 mV beträgt, sehneiden Sie den Leitungsdraht für (J1) im Palle des linken Kanals weg (oder den Leitungsdraht für (J2) im Falle des rechten Kanals) .
4. Falls die Anzeige auch nach Unterbrechen des Leitungsdrahtes nicht unter 13 mV fällt, so ist die Schaltung nicht in Ordnung, und die Stromquellenschaltung und die Hauptverstärkerschaltung müssen überprüft werden.

ANMERKUNG: Falls das Wegschneiden des Leitungsdrahtes nötig ist, schneiden Sie diesen nahe am Anschlußpunkt weg.

Ⓑ **Die Stromstärke sollte nur geprüft werden, wenn die Justierung mit einem Prüfgerät vorgenommen wird. (Mit dem Meßinstrument kann die Spannung nicht in mV gemessen werden.)**

1. Schalten Sie die Stromzufuhr zum Gerät aus.
2. Schließen Sie das Ammeter an, wie in Abb. 3 gezeigt.
3. Nachdom Sie sich vergewissert haben, daß das Ammeter solide befestigt ist, schalten Sie die Stromzufuhr ein.
4. Falls die Anzeige einige Minuten nach dem Einschalten weniger als 59 mA beträgt, so ist die Schaltung in Ordnung. Liegt die Anzeige über 59 mA, schneiden Sie den Leitungsdraht für (J1) im Falle des linken Kanals weg. (oder den Leitungsdraht für (J2) im Falle des rechten Kanals) .
5. Falls die Anzeige auch dann nicht unter 59 mA fällt, so ist die Schaltung defekt.

ANMERKUNG: Die Justierung kann entweder nach Methode Ⓐ oder Ⓑ vorgenommen werden. (Wo möglich, empfehlen wir Methode Ⓐ . Die Abbildungen 2 und 3 beziehen sich auf den linken kanal.

■ INSTRUCTIONS D'ALIGNEMENT (Partie amplificateur)

- Lorsque le transistor de puissance est remplacé, s'assurer d'appliquer le composé de silicone (ou un agent de diffusion thermique équivalent) sur la plaque de mica et confirmer en même temps le courant déwatté du transistor de puissance. (Mesurer la tension à travers la résistance de l'émetteur).

Ⓐ **Pour la mise au point avec un voltmétre C.C.**

1. Tourner le commutateur de haut-parleur sur "OFF".
2. Connecter le voltmètre C.C. comme dans la Fig. 1 du schéma des endroits de vérification.
3. Si la lecture est approximativement inférieure à 13 mV plusieurs minutes après la mise en marche de l'alimentation, le circuit fonctionne correctement. Par contre, si la lecture est au-delà de 13 mV, couper le fil de jonction pour (J1) dans le cas du canal Gauche [L], (le fil de jonction pour (J2), dans le cas du canal Droite [R].
4. Si la lecture ne descends pas au-dessous de 25 mV même lorsque le fil de jonction a été coupé, cela signifie qu il y a quelque chose d'incorrect dans le circuit et par conséquent, il sera nécessaire de vérifier le circuit d'alimentation ou le circuit d'amplification principal.

REMARQUE: Lorsqu'on coupe le fil de jonction, le couper à l'extrémité de sa racine.

Ⓑ **Le courant ne devra être vérifié seulement que lorsque la mise au point est faite avec un appareil contrôleur. (Appareil de mesure incapable d'une tension de mesure dans un appareillage de mV).**

1. Couper l'alimentation de l'appareillage.
2. Brancher l'ampèremètre, comme il est montré à la Fig. 3.
3. Après s'être assuré que l'ampèremètre n'est pas débranché, mettre en marche l'alimentation.
4. Si la lecture est inférieure à 59 mA après plusieurs minutes, le circuit fonctionne correctement. Si par contre la lecture va au-delà de 59 mA, couper le fil de jonction pour (J1) dans le cas du canal Gauche [L] , (le fil de jonction pour (J2), dans le cas du canal Droite [R]).
5. Si la lecture ne descends pas au-dessous de 59 mA, cela signifie qu'il y a quelque chose de défectueux dans le circuit.

REMARQUE: La mise au point doit être faite soit avec la méthode Ⓐ, soit avec la méthode Ⓑ. (Si c'est possible, nous recommandons la méthode Ⓐ. Les Figures 2 et 3 se rapportent au cas du canal Gauche [L].

■ ABGLEICHANWEISUNGEN (FM/AM Tunerteil)

(Für Deutshland)

Anmerkungen:
1. Bereichsschalter . . . . AM (AM Abgleich) / FM (FM Abgleich)
2. FM Muting/ mode-Schalter . . . . . on/ FM auto
3. Die Netzspannung auf ihren Sollwert einstellen.
4. Tape/ Monitor-Umschalter . . . . . SOURCE
5. Der Ausgang des Meßsenders darf nicht höher sein als unbedingt notwendig für eine gute Ablesung.
6. UKW-Kunstantenne, 300 ohm . . . . .Vgl. Abb. 7.
7. Lautsprecher-Schalter . . . . ON

	AM/UKW MESSENDER order WOBBELGENERATOR		SKALENZEIGEREIN-STELLUNG DES TUNER	ANZEIGE (Röhrenvoltmeter order Oszillograph ozw. Klirrfaktor-Meßgerät)	ABGLEICHS-PUNKTE	BEMERKUNGEN
	ANSCHLUSS	FREQUENZ				
	AM-ABGLEICH					
1	Heißes Ende des Meßsender über einen 0.001μF Kondensator un den AM Antenneneingang schließen. Kaltes Ende an Masse	455kHz (400Hz Modulat., 100%)	Kein Empfang	Röhrenvoltmeter oder Oszillograph	T201 (1. IFT) T202 (2. IFT)	Auf max. Ausgang abgleichen.
2	Das Meßsendersignal induktiv in den Tuner speisen. Hierzu behelfsmäßig eine Rahmenantenne fertigen und an den Eingang schließen.	600kHz (400Hz Modulat., 30%)	600kHz	Röhrenvoltmeter order Oszillograph über den Lautsprecher schließen.	L202 (Osc. Spule) L201 (Ant. Spule)	Auf max. Ausgang abgleichen. L201 wird abgeglichen, indem die Spule am Ferritstab. entlanggeschoben wird.
3	Das Meßsendersignal induktiv in den Tuner speisen. Hierzu behelfsmäßig eine Rahmenantenne fertigen und an den Eingang schließen.	1500kHz (400Hz Modulat., 30%)	1500kHz	Röhrenvoltmeter oder Oszillograph über den Loutsprecher schließen.	CT5 (Osc. Trimmer) CT4 (Ant. Trimmer)	Auf max. Ausgang abgleichen. Schritte (2) und (3) sind zu wiederholen.
	UKW ZF-ABGLEICH					
4		Kein Signal	Kein Empfang	Abstimmanzeige.	T101 (Diskriminator IFT) [A]	Den Abstimmungsanzeiger auf den zentrum Wert einstellen.
	UKW HF-ABGLEICH					
5	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	87.5MHz (400Hz Modulat., 100%)	87.5MHz (Frequenz min.)	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	L6 (Osc. Spule)	Auf max. Ausgang abgleichen.
6	Meßsender üder eine Kunstantenne an den UKW-Antenneneingang schließen.	90MHz (400Hz Modulat., 100%)	90MHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	L4 (Det. Spule) L2 (Ant. Spule)	Auf max. Ausgang abgleichen.
7	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	106MHz (400Hz Modulat., 100%)	106MHz	Röhrenvoltmeter oder Oszillograph über den Loutsprecher schßeßen.	CT3 (Osc. Trimmer) CT2 (Det. Trimmer) CT1 (Ant. Trimmer)	Auf max. Ausgang abgleichen Schritte(5), (6) und (7) sind zu wiederholen.
	ABGLEICH AUF MIN. VERZERRUNG IN STELLUNG UKW-MONO					
8	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	100MHz (400Hz Modulat., 100%)	100MHz	Klirrfaktor-Meßbrücke über den Lautsprecher schlieben.	T101 (Diskriminator IFT) [B]	Auf min. Verzerrung auf der Klirrfaktor-Meßbürcke abgleichen Schritt (4) und (8) sind zu wiederholen.
	UKW-MUTING-ABGLEICH					
9	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. Meßsender auf 16 dB (6.3μV) einstellen.	100 MHz (400 Hz Modulat., 100%)	100 MHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	VR101	Muting Schalter auf "on" So einstellen, daß ein Ausgang zu vernehmen ist.

UKW-STEREO-DEKODER-ABGLEICH

	Unter Verwendung eines Zählers	Alternativ-Meßmethode
10	1. Unmoduliertes Mono-Signal 100 MHz in das Gerät speisen. 2. FM Muting-Schalter auf "on/ FM auto" stellen. 3. Zähler über einen Widerstand 100K ohm an **TP301** schließen. 4. **VR301** auf 19kHz ±30Hz einstellen.	1 Stereosignal entweder von einem Stereogenerator oder einem Sender einspeisen. 2. **VR301** so einstellen, bis die Stereolampe auf leuchtet. Schleifer von **VR301** sichern, wie in Abb. 8 gezeigt.

KANALTRENNUNG-ABGLEICH

Anmerkungen:
1. Stereo-Modulator . . . . Ansgang des Stereo-Modulators an den Eingang EXT MOD des Meßsenders schließen. Eingebauter Oszillator . . . . . 1kHz / Pilotton-Modulation 10%
2. UKW Meßsender . . . . Auf etwa 100MHz einstellen. Ausgangspegel 72dB (IHF). Modulation FM
3. Bereichsschalter . . . . FM
4. Muting/ Mode-Schalter. . . . . on/FM auto

	ANSCHLUSS DES UKW MESSENDERS	STEREO MODULATOR MODE oder MOD. RATE	ANZEIGE (Röhrenvoltmeter oder Oszillograph)	ABGLEICHS-PUNKTE	ANMERKUNGEN
11	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	**L** (und R) Modulation 30%	Röhrenvoltmeter oder Oszillograph über Tiefpassfilter an den Tuner-Ausgang schließen. Vgl. Abb. 9.	VR302	Auf min. Ausgang **rechter** (und linker) abgleichen.

■ INSTRUCTIONS DAIGNEMENT (Partie tuner FM/AM)

Notes:
1. Commutateur de gamme..... {AM (Alignement AM)
FM (Alignement FM)
2. Commutateur de silencieux . . . on/FM auto
3. Conserver la tension du secteur à la tension nominale.
4. Commutateur de contrôle auditif . . . . . SOURCE (relâchée)
5. Le signal de sortie du générateur ne doit pas être plus élevé que nécessaire à la lecture en sortie de làppareil.
6. Antenne fictive FM 300Ω . . . . .Voir fig. 10.
7. Commutateur d'enceintes . . . . .ON

	AM/FM GENERATEUR		AIGUILLE SUR LE CADRAN	INDICATEUR (VOLTMETRE ELECTRONIQUE OSCILLOSCOPE OU DISTORSIONMETRE)	POINTS DE REGLAGE	OBSERVATIONS
	BRANCHEMENT	FREQUENCE				
	ALIGNEMENT AM					
1	Côté chaud, à travers 0.001μF, sur le trimmer de l'antenne AM, commum an shâssis	455kHz (modulé à 30% par 400Hz)	Point sans signal	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	T201 (1 transfo FI) T202 (2 transfo FI)	Réglez au maximum de signal de sortie.
2	Faire une boucle de quelgues tours et rayonner le signal dans le cadre du l'ampli-tuner.	600kHz (modué à 30% par 400Hz)	600kHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	L202 (bobine OSC) L201 (bobine ANT)	Réglez au maximum de signal de sortie. Réglez L201 en déplacant la bobine le long du noyau de ferrite.
3	Faire une boucle de quelgues tours et rayonner le signal dans le cadre du l'ampli-tuner.	1500kHz (modulé à 30% par 400Hz)	1500kHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	CT5 (trimmer OSC) CT4 (trimmer ANT)	Réglez au maximum de signal de sortie. Recommencez les étapes (2) et (3).
	A LIGNEMENT FI—FM					
4		Sans signal	point sans signal	Indicateur d'accord de l'appareil	T101 (Transfo FI discri.) [A]	Réglez pour atteindre position médiane sur l'indicateur d'accord.
	ALIGNEMENT RF—FM					
5	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	90MHz (modulé à 100% par 400Hz)	90MHz	Branchez un voltmétre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	L6 (bobine OSC) L4 (bobine DET) L2(bobine ANT)	Réglez au maximum de signal de sortie.
6	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	106MHz (modulé à 100% par 400Hz)	106MHz	Branchez un voltmétre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	CT3 (trimmer OSC) CT2 (trimmer DET) CT1 (trimmer ANT)	Réglez au maximum de signal de sortie. Recommencez les étapes (5) et (6).
	REGLAGE DE LA DISTORSION FM EN MONO					
7	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	100MHz (modulé à 100% par 400Hz)	100MHz	Branchez un distorsiométre sur les bornes de haut-parleur de l'appareil.	T101 (Transfo FI discri.) [B]	Réglez au minimum d'indication du distorsiomètre. Recommencez les étapes (4) et (7).
	REGLAGE DU SEUIL DU SILENCIEUX D'ACCORD					
8	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. Niveau de sortie du générateur 16 dB (6.3μV).	100 MHz (modulé à (100% par 400Hz)	100 MHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	VR101	Commutateur de silencieux sur "on" Régler pour obtenir une lecture en sortie.

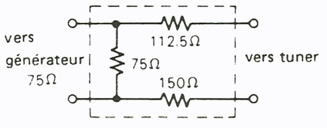
ALIGNEMENT DU PILOTE MULTIPLEX FM

	Avec un fréquencemétre	Par un outre système
9	1. Signal mono 100MHz non modulé appliqué à l'appareil. 2. Commutateur de silencieux sur "on/FM auto". 3. Branchez le fréquencemètre sur **TP301** à travers une résistance de 100kΩ. 4. Réglez **VR301** sur 19kHz ± 30Hz.	1. Appliquez à l'appareil un signal stéréo provenant d'un générateur ou de la réception d'un émetteur. 2. Réglez **VR301** jusqu á ce que l'indicateur de stéréophonic s'allume. Collez le curseur de **VR301** comme indiqué sur la fig. 11.

REGLAGE DE LA SEPARATION DES CANAUX

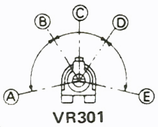
Notes:
1. Modulateur stéréo. . . . . Branchez sa sortie sur la prise EXT. MOD. du générateur.
   OSC interne . . . . . 1kHz Modulation du signal pilote 10%
2. Générateur de signal . . . . Fréquence env. 100MHz, niveau de sortie 72dB (IHF), genre de modulation sur FM.
3. Commutateur de gamme . . . . FM
4. Commutateur de silencieux . . . . .on /FM auto

	BRANCHEMENT DU GENERATEUR DE SIGNAL	MODE DU MODULATEUR STEREO ET TAUX DE MODULATION	INDICATEUR (VOLTMETRE ELECTRONIQUE OU OSCILLOSCOPE)	POINTS DE REGLAGE	OBSERVATIONS
10	Borne d'antenne FM à travers antenne fictive.	**Gauche** (et droite) à 30% de modulation.	Sur les bornes de haut-parleur à travers un filtre passe-bas, voir fig. 12.	VR302	Réglez au minimum de sortie **droite**(et gauche)



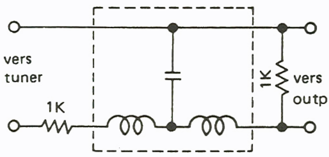
Antenne fictive FM 300Ω

Fig. 10



Ⓐ~Ⓑ , Ⓓ~Ⓔ: Position stéréo arrêt
Ⓑ~Ⓓ : Position stéréo en marche (éclairage du voyant indicateur)
Ⓒ : Point de réglage du circuit pilote

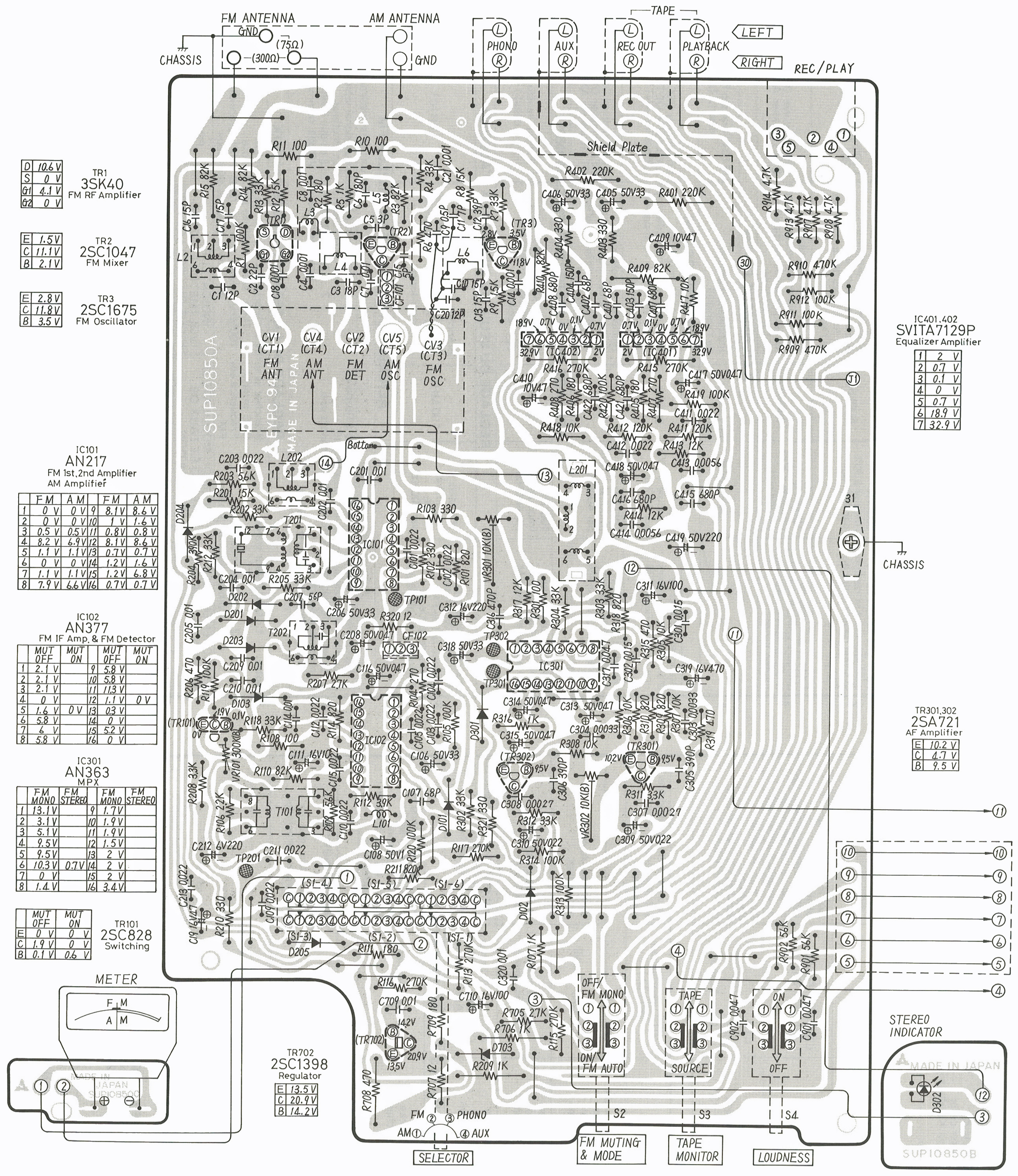
Fig. 11



FILTRE PASSE-BAS
(fc = 15 kHz ~ 19 kHz)

Fig. 12

Printed Circuit Board ... FM/AM Tuner & Equalizer Circuit


FM ANTENNA
GND
(75Ω)
(300Ω)
AM ANTENNA
GND
CHASSIS
PHONO
AUX
REC OUT
PLAYBACK
TAPE
LEFT
RIGHT
REC/PLAY
Shield Plate
SUP10850A
MADE IN JAPAN
CV1 (CT1) FM ANT
CV4 (CT4) AM ANT
CV2 (CT2) FM DET
CV5 (CT5) AM OSC
CV3 (CT3) FM OSC
IC101
IC102
IC301
IC401
IC402
TP101
TP201
TP301
TP302
METER
F M
A M
SELECTOR
FM
AM
PHONO
AUX
S2
FM MUTING & MODE
OFF/FM MONO
ON/FM AUTO
S3
TAPE
SOURCE
TAPE MONITOR
S4
ON
OFF
LOUDNESS
STEREO INDICATOR
D302
SUP10850B
CHASSIS

TR1
3SK40
FM RF Amplifier

D	10.6 V
S	0 V
G1	4.1 V
G2	0 V

TR2
2SC1047
FM Mixer

E	1.5 V
C	11.1 V
B	2.1 V

TR3
2SC1675
FM Oscillator

E	2.8 V
C	11.8 V
B	3.5 V

IC101
AN217
FM 1st, 2nd Amplifier
AM Amplifier

	FM	AM		FM	AM
1	0 V	0 V	9	8.1 V	8.6 V
2	0 V	0 V	10	1 V	1.6 V
3	0.5 V	0.5 V	11	0.8 V	0.8 V
4	8.2 V	6.9 V	12	8.1 V	8.6 V
5	1.1 V	1.1 V	13	0.7 V	0.7 V
6	0 V	0 V	14	1.2 V	1.6 V
7	1.1 V	1.1 V	15	1.2 V	6.8 V
8	7.9 V	6.6 V	16	0.7 V	0.7 V

IC102
AN377
FM IF Amp. & FM Detector

	MUT OFF	MUT ON		MUT OFF	MUT ON
1	2.1 V		9	5.8 V	
2	2.1 V		10	5.8 V	
3	2.1 V		11	11.3 V	
4	0 V		12	1.1 V	0 V
5	1.6 V	0 V	13	0.3 V	
6	5.8 V		14	0 V	
7	6 V		15	5.2 V	
8	5.8 V		16	0 V	

IC301
AN363
MPX

	FM MONO	FM STEREO		FM MONO	FM STEREO
1	13.1 V		9	1.7 V	
2	3.1 V		10	1.9 V	
3	5.1 V		11	1.9 V	
4	9.5 V		12	1.5 V	
5	9.5 V		13	2 V	
6	10.3 V	0.7 V	14	2 V	
7	0 V		15	2 V	
8	1.4 V		16	3.4 V	

TR101
2SC828
Switching

	MUT OFF	MUT ON
E	0 V	0 V
C	1.9 V	0 V
B	0.1 V	0.6 V

IC401, 402
SVITA7129P
Equalizer Amplifier

1	2 V
2	0.7 V
3	0.1 V
4	0 V
5	0.7 V
6	18.9 V
7	32.9 V

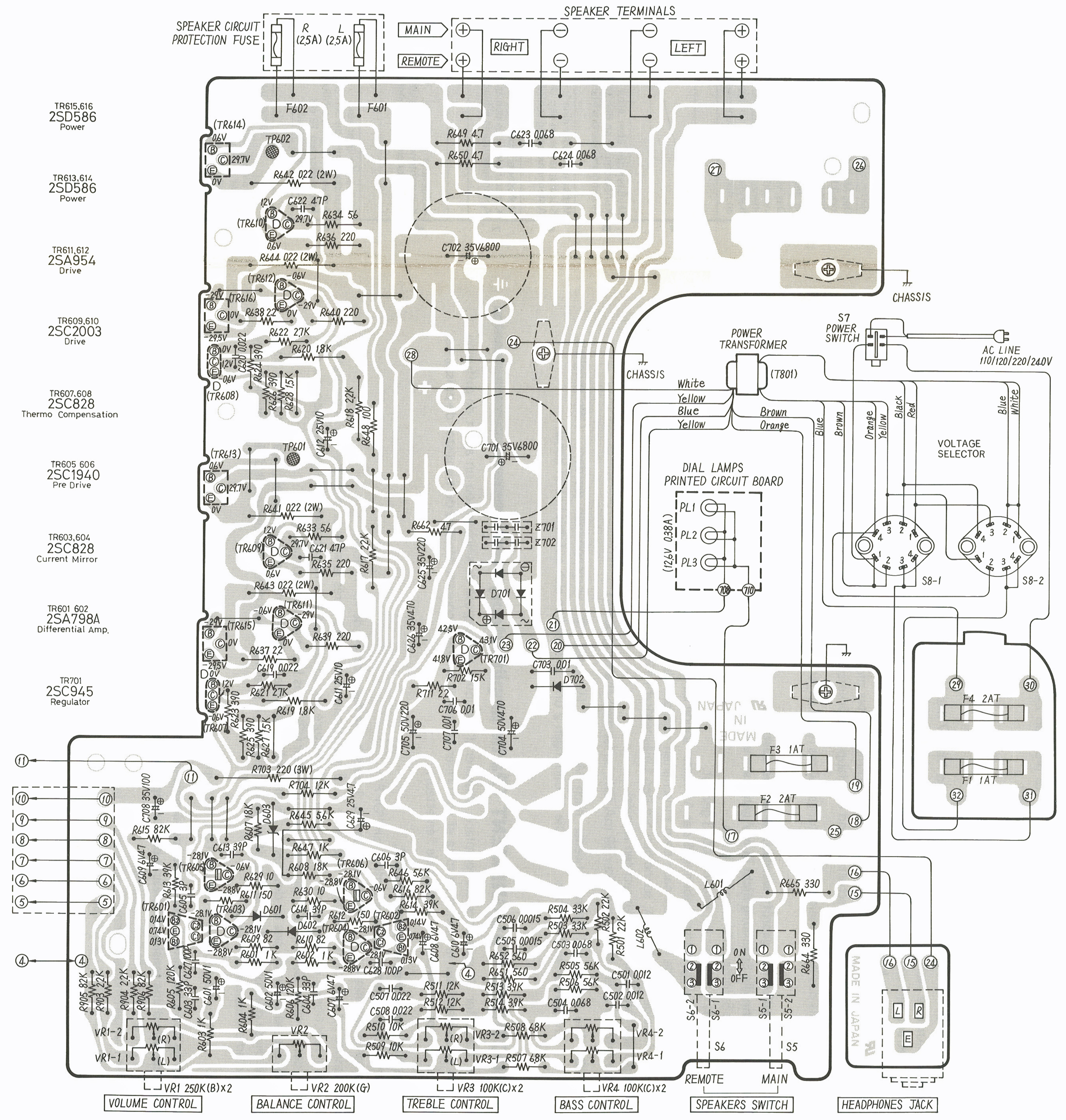
TR301, 302
2SA721
AF Amplifier

E	10.2 V
C	4.7 V
B	9.5 V

TR702
2SC1398
Regulator

E	13.5 V
C	20.9 V
B	14.2 V

Printed Circuit Board ... Tone Control, Main Amplifier & Power Supply Circuit


SPEAKER CIRCUIT PROTECTION FUSE
R (25A)
L (25A)
F602
F601
SPEAKER TERMINALS
MAIN
REMOTE
RIGHT
LEFT
TP601
TP602
C702 35V6800
C701 35V6800
CHASSIS
S7 POWER SWITCH
AC LINE 110/120/220/240V
POWER TRANSFORMER
(T801)
White
Yellow
Blue
Yellow
Brown
Orange
Blue
Brown
Orange
Yellow
Black
Red
Blue
White
VOLTAGE SELECTOR
S8-1
S8-2
DIAL LAMPS PRINTED CIRCUIT BOARD
PL1
PL2
PL3
(12V 0.38A)
F4 2AT
F1 1AT
F3 1AT
F2 2AT
MADE IN JAPAN
VR1 250K(B)×2
VOLUME CONTROL
VR2 200K(G)
BALANCE CONTROL
VR3 100K(C)×2
TREBLE CONTROL
VR4 100K(C)×2
BASS CONTROL
S6
S5
REMOTE
MAIN
SPEAKERS SWITCH
HEADPHONES JACK

TR615, 616
2SD586
Power

TR613, 614
2SD586
Power

TR611, 612
2SA954
Drive

TR609, 610
2SC2003
Drive

TR607, 608
2SC828
Thermo Compensation

TR605 606
2SC1940
Pre Drive

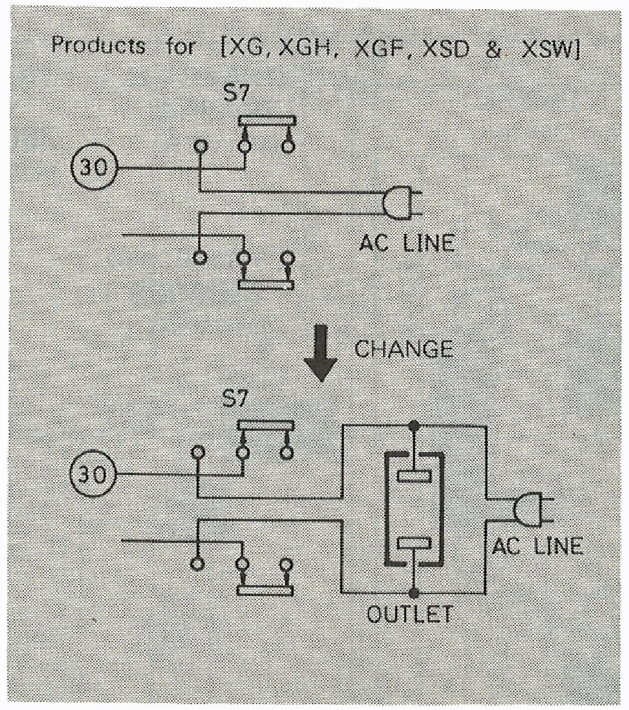
TR603, 604
2SC828
Current Mirror

TR601 602
2SA798A
Differential Amp.

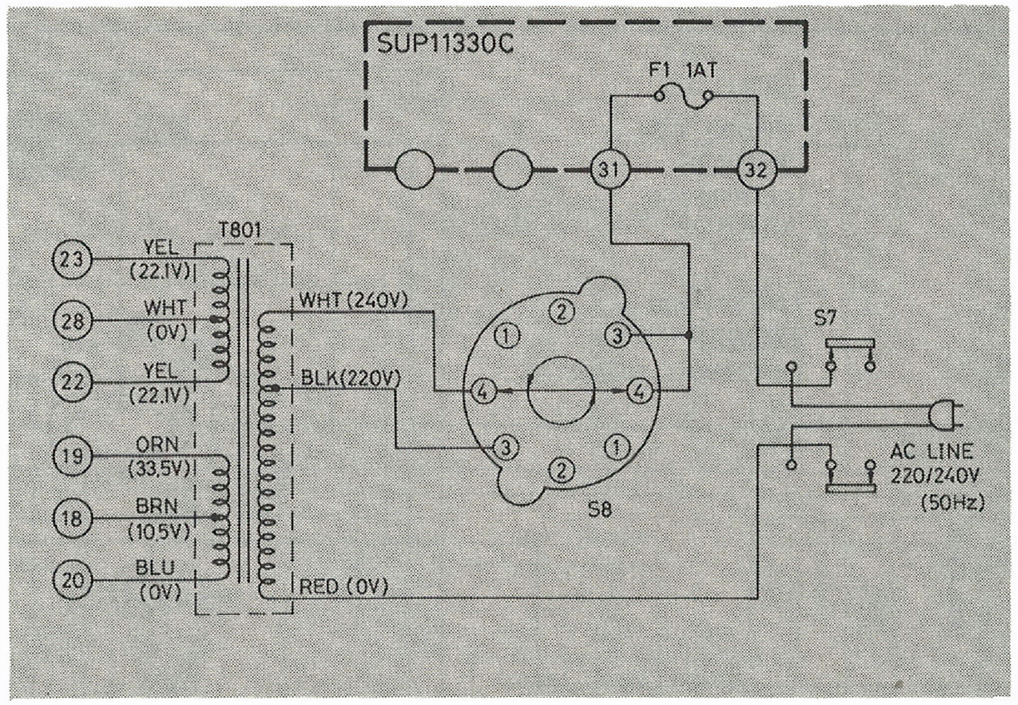
TR701
2SC945
Regulator

■ POWER SOURCE CIRCUIT OF OTHER PRODUCTS FOR (XG , XGH, XGF, XSD, XSW)

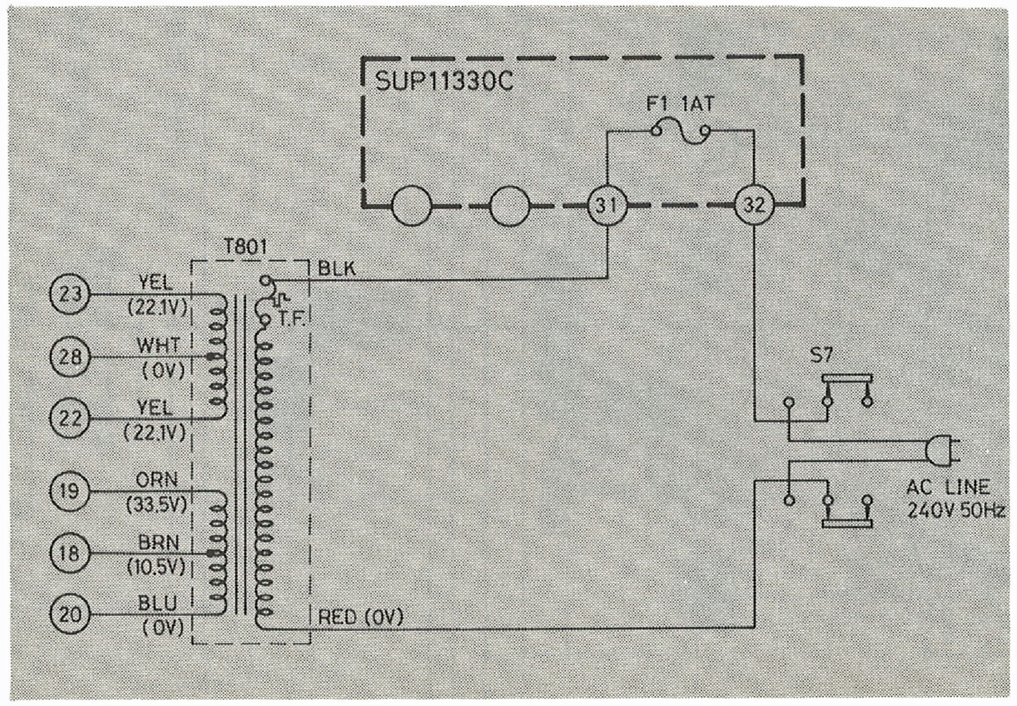
- **Product for [XA]**


Products for [XG, XGH, XGF, XSD & XSW]
S7
30
AC LINE
CHANGE
S7
30
AC LINE
OUTLET

- **Product for England [XE]**

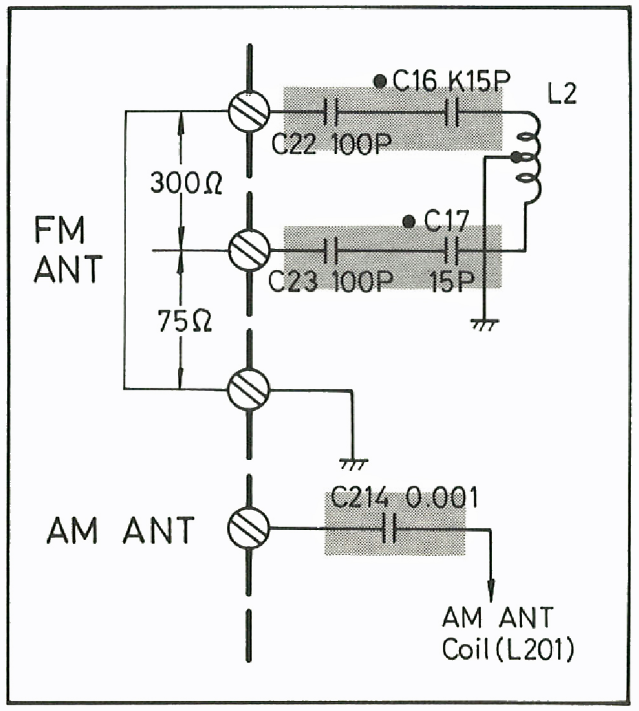

SUP11330C
F1 1AT
31
32
T801
23
YEL (22.1V)
28
WHT (0V)
22
YEL (22.1V)
19
ORN (33.5V)
18
BRN (10.5V)
20
BLU (0V)
WHT (240V)
BLK(220V)
RED (0V)
S8
S7
AC LINE 220/240V (50Hz)

- **Product for Australia [XAL]**

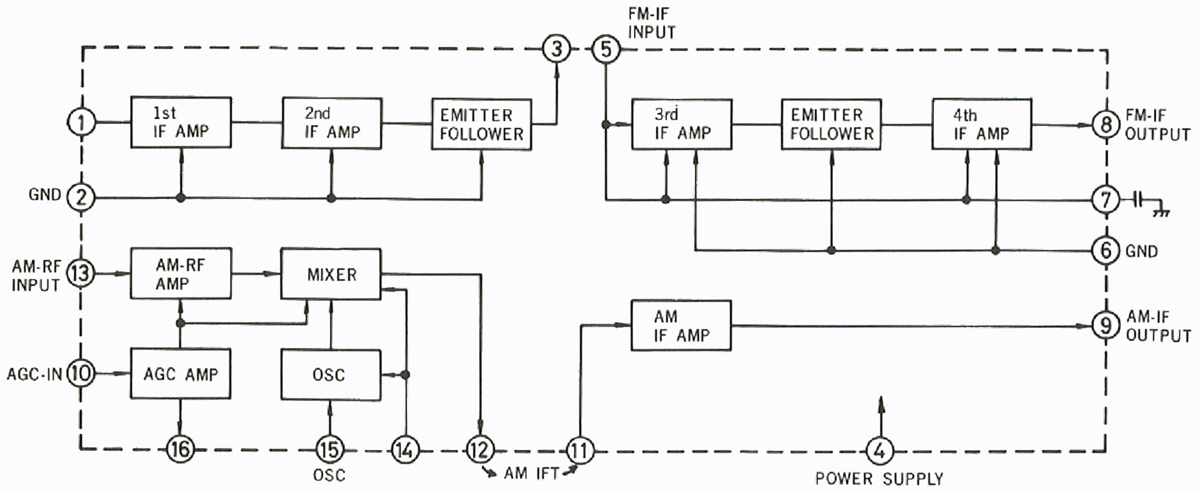

SUP11330C
F1 1AT
31
32
T801
BLK
T.F.
23
YEL (22.1V)
28
WHT (0V)
22
YEL (22.1V)
19
ORN (33.5V)
18
BRN (10.5V)
20
BLU (0V)
RED (0V)
S7
AC LINE 240V 50Hz

■ ANTENNA CUPPLING CAPACITORS

- **Products for Australia [XAL]**

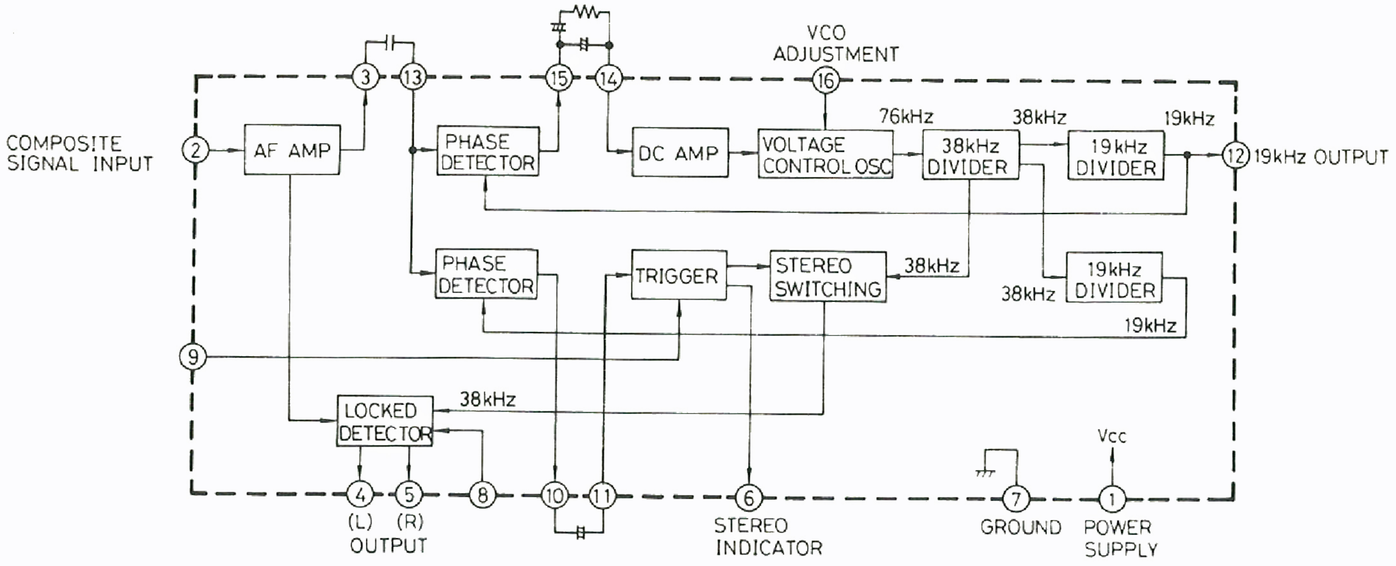

●C16 K15P
L2
C22 100P
300Ω
FM ANT
●C17
C23 100P
15P
75Ω
AM ANT
C214 0.001
AM ANT Coil (L201)

■ BLOCK DIAGRAMS OF INTEGRATED CIRCUITS


FM-IF INPUT
1st IF AMP
2nd IF AMP
EMITTER FOLLOWER
3rd IF AMP
EMITTER FOLLOWER
4th IF AMP
FM-IF OUTPUT
GND
GND
AM-RF INPUT
AM-RF AMP
MIXER
AM IF AMP
AM-IF OUTPUT
AGC-IN
AGC AMP
OSC
OSC
AM IFT
POWER SUPPLY

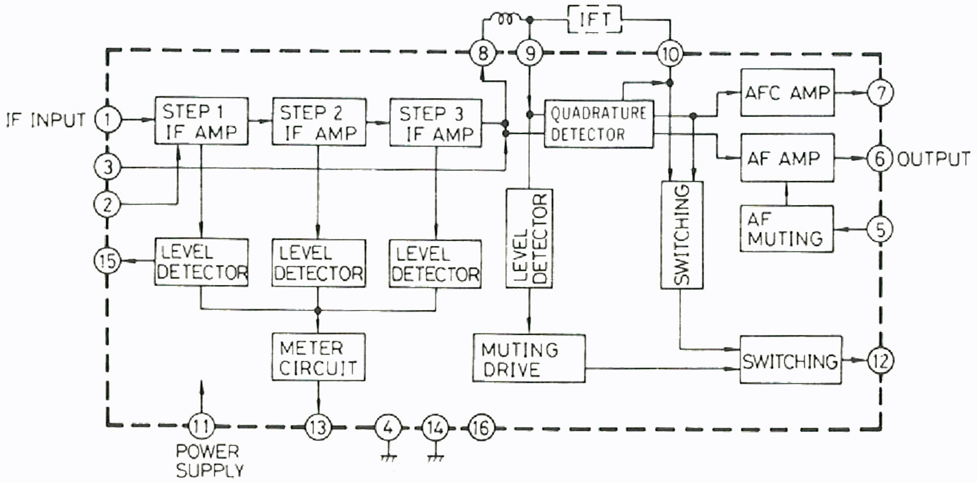
IC101 (AN217)

FM 2 STEPS IF AMPLIFIER & AM CIRCUIT


VCO ADJUSTMENT
COMPOSITE SIGNAL INPUT
AF AMP
PHASE DETECTOR
DC AMP
VOLTAGE CONTROL OSC
76kHz
38kHz
38kHz DIVIDER
19kHz
19kHz DIVIDER
19kHz OUTPUT
PHASE DETECTOR
TRIGGER
STEREO SWITCHING
38kHz
38kHz
19kHz DIVIDER
19kHz
LOCKED DETECTOR
38kHz
Vcc
(L) (R) OUTPUT
STEREO INDICATOR
GROUND
POWER SUPPLY

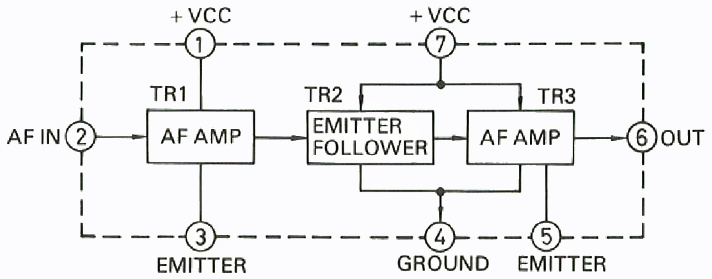
IC301 (AN363)

PLL FM MULTIPLEX CIRCUIT


IFT
IF INPUT
STEP 1 IF AMP
STEP 2 IF AMP
STEP 3 IF AMP
QUADRATURE DETECTOR
AFC AMP
AF AMP
OUTPUT
AF MUTING
LEVEL DETECTOR
LEVEL DETECTOR
LEVEL DETECTOR
LEVEL DETECTOR
SWITCHING
METER CIRCUIT
MUTING DRIVE
SWITCHING
POWER SUPPLY

IC102 (AN377)

FM IF AMPLIFIER & DETECTOR CIRCUIT

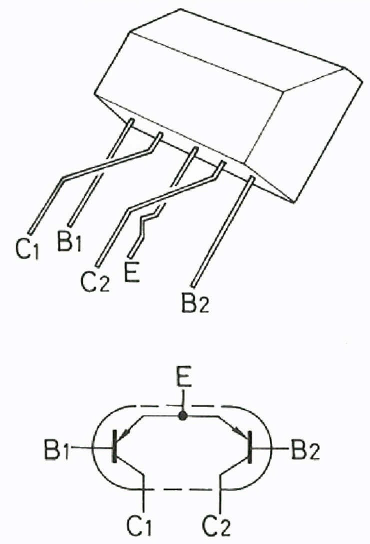

+VCC
+VCC
TR1
TR2
TR3
AF IN
AF AMP
EMITTER FOLLOWER
AF AMP
OUT
EMITTER
GROUND
EMITTER

IC401, 402 (SVITA7129P)

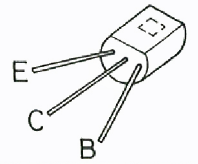
EQUALIZER AMPLIFIER CIRCUIT

■ TERMINAL GUIDE

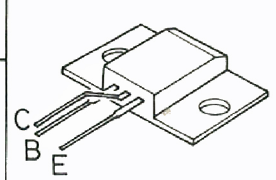
2SA798A


C1
B1
C2
E
B2
E
B1
B2
C1
C2

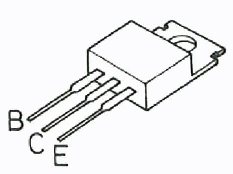
2SA721, 2SA954
2SC828, 2SC2003
2SC1047, 2SC1675
2SC945



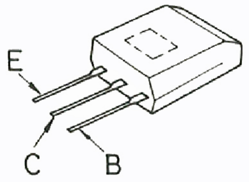
2SD586



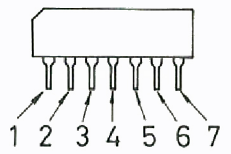
2SC1398



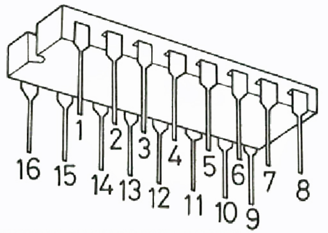
2SC1940



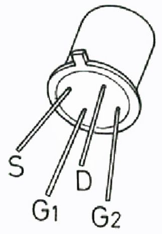
SVITA7129P



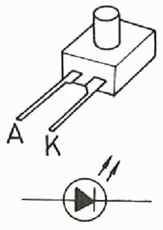
AN217, AN377, AN363


1 2 3 4 5 6 7 8
16 15 14 13 12 11 10 9

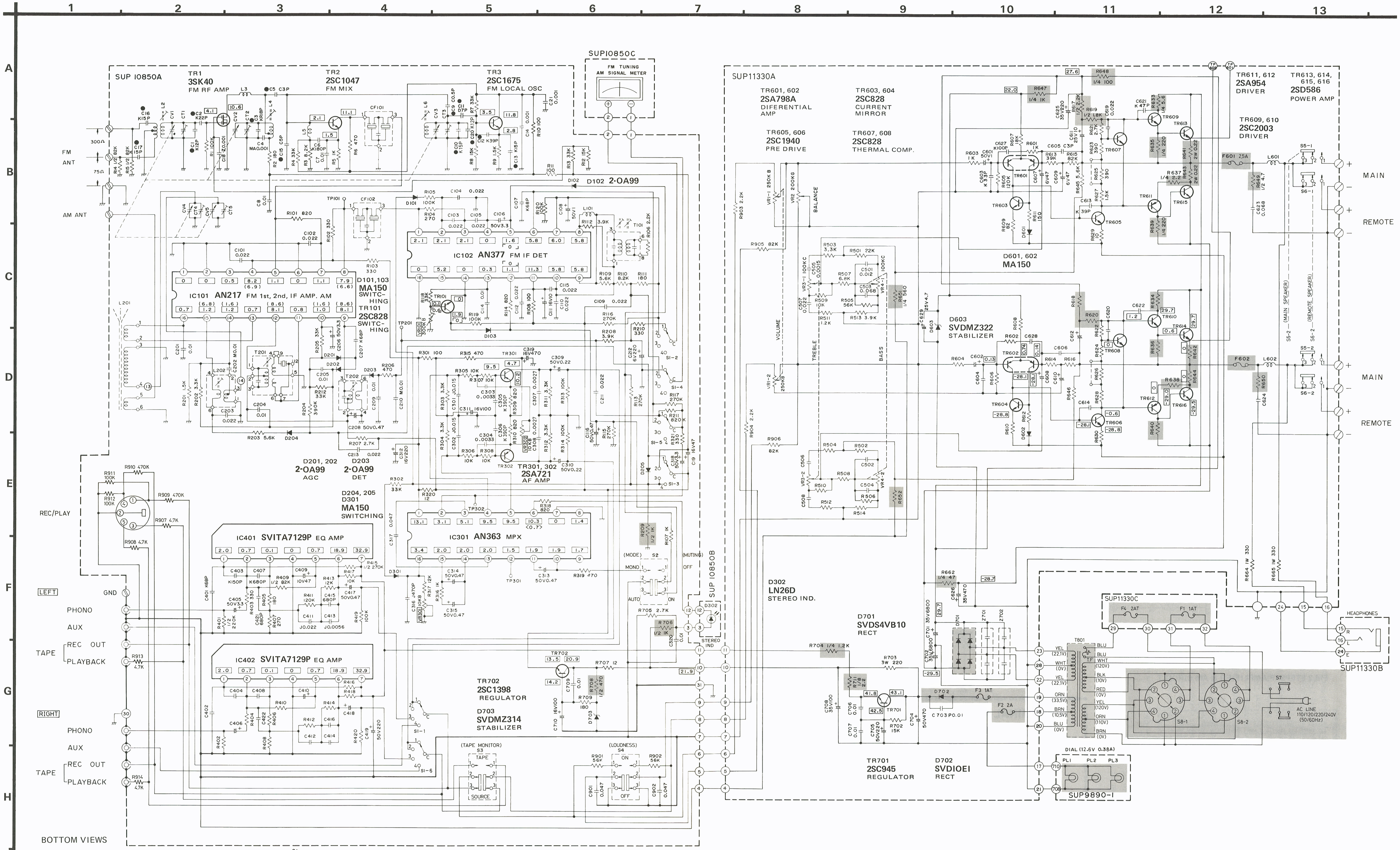
3SK40



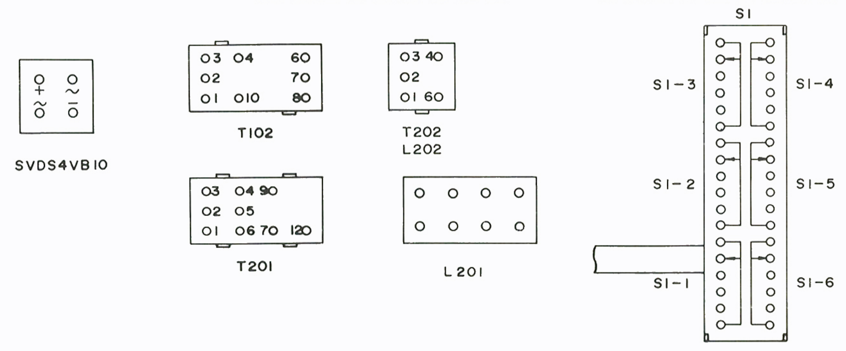
LN26D



Schematic Diagram ...... Model SA-5170／SA-5170K


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
SUP 10850A
SUP10850C
FM TUNING
AM SIGNAL METER
SUP11330A
TR1
3SK40
FM RF AMP
TR2
2SC1047
FM MIX
TR3
2SC1675
FM LOCAL OSC
FM
ANT
300Ω
75Ω
AM ANT
IC101 AN217 FM 1st, 2nd, IF AMP. AM
IC102 AN377 FM IF DET
D101,103
MA150
SWITCHING
TR101
2SC828
SWITCHING
D102 2-OA99
D201, 202
2-OA99
AGC
D203
2-OA99
DET
D204, 205
D301
MA150
SWITCHING
TR301, 302
2SA721
AF AMP
IC301 AN363 MPX
IC401 SVITA7129P EQ AMP
IC402 SVITA7129P EQ AMP
REC/PLAY
LEFT
GND
PHONO
AUX
TAPE
REC OUT
PLAYBACK
RIGHT
PHONO
AUX
TAPE
REC OUT
PLAYBACK
TR702
2SC1398
REGULATOR
D703
SVDMZ314
STABILIZER
(TAPE MONITOR)
S3
TAPE
SOURCE
(LOUDNESS)
S4
ON
OFF
(MODE)
S2
MONO
AUTO
(MUTING)
OFF
ON
SUP 10850B
STEREO IND
D302
LN26D
STEREO IND.
TR601, 602
2SA798A
DIFERENTIAL AMP
TR603, 604
2SC828
CURRENT MIRROR
TR605, 606
2SC1940
PRE DRIVE
TR607, 608
2SC828
THERMAL COMP.
TR611, 612
2SA954
DRIVER
TR613, 614, 615, 616
2SD586
POWER AMP
TR609, 610
2SC2003
DRIVER
D601, 602
MA150
D603
SVDMZ322
STABILIZER
VOLUME
BALANCE
TREBLE
BASS
F601 2.5A
F602
MAIN
REMOTE
MAIN
REMOTE
S5-1
S6-1
S5-2
S6-2
(MAIN SPEAKER)
(REMOTE SPEAKER)
SUP11330C
F4 2AT
F1 1AT
HEADPHONES
SUP11330B
D701
SVDS4VB10
RECT
TR701
2SC945
REGULATOR
D702
SVD10E1
RECT
F3 1AT
F2 2A
T801
S7
S8-1
S8-2
AC LINE
110/120/220/240V
(50/60Hz)
DIAL (12.6V 0.38A)
PL1
PL2
PL3
SUP9890-1

BOTTOM VIEWS


SVDS4VB10
T102
T202
L202
T201
L201
S1
S1-1
S1-2
S1-3
S1-4
S1-5
S1-6

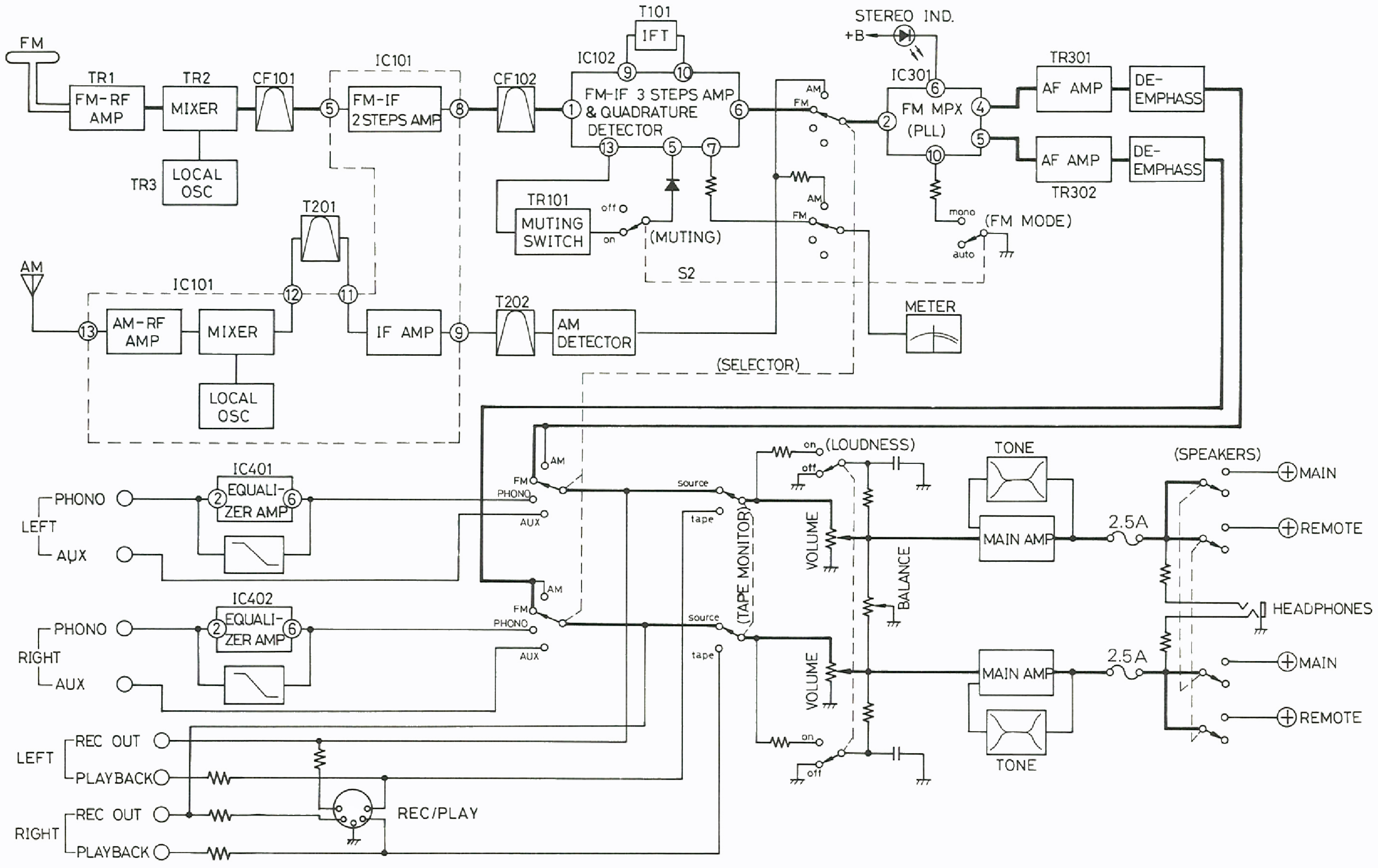
IMPORTANT SAFETY NOTICE

THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR SAFETY.
WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTUR'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

NOTES:

1. S1-1 ～ S1-6: Selector switch in "AM" position
   ① AM↔② FM↔③ PHONO↔④ AUX
2. S2: FM muting/FM mode switch in "ON/FM AUTO" position.
3. S3: Tape monitor switch in "SOURCE" position.
4. S4: Loudness switch in "OFF" position
5. S5-1, S5-2: Main speaker switch in "OFF" position.
6. S6-1, S6-2: Remote speaker switch in "OFF" position.
7. S7: Power source switch in "OFF" position.
8. S8-1, S8-2: Voltage selector switch in "110V" position
   ① 110V↔② 120V↔③ 220V↔④ 240V
9. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
   - ▭ FM monoral signal reception
   - ( ) AM position.
   - 〈 〉 FM stereo signal reception
   - ⌞ ⌝ FM muting circuit operating position
10. This schematic diagram may be modified at any time with the development of new technology.

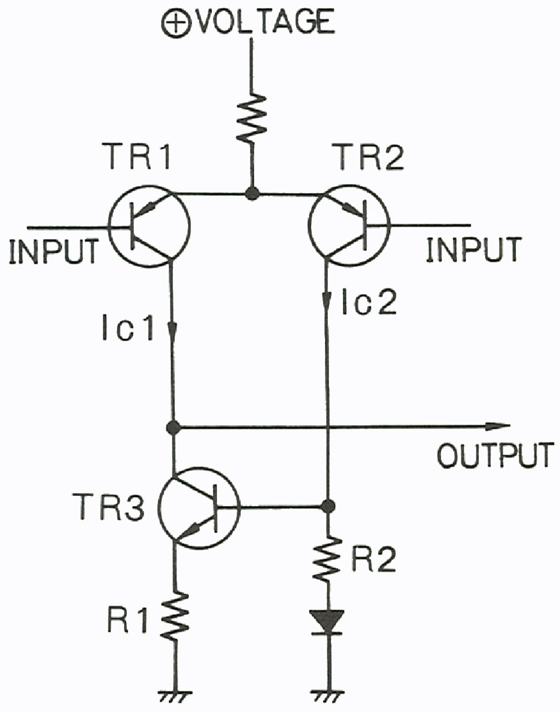
■ BLOCK DIAGRAM


FM
TR1
FM-RF AMP
TR2
MIXER
TR3
LOCAL OSC
CF101
IC101
FM-IF 2 STEPS AMP
CF102
IC102
T101
IFT
FM-IF 3 STEPS AMP & QUADRATURE DETECTOR
STEREO IND.
+B
IC301
FM MPX (PLL)
TR301
AF AMP
DE-EMPHASS
TR302
AF AMP
DE-EMPHASS
TR101
MUTING SWITCH
off
on
(MUTING)
S2
mono
(FM MODE)
auto
AM
IC101
AM-RF AMP
MIXER
LOCAL OSC
T201
IF AMP
T202
AM DETECTOR
METER
(SELECTOR)
FM
AM
IC401
EQUALI-ZER AMP
PHONO
LEFT
AUX
IC402
EQUALI-ZER AMP
PHONO
RIGHT
AUX
source
tape
(TAPE MONITOR)
(LOUDNESS)
on
off
VOLUME
BALANCE
TONE
MAIN AMP
2.5A
(SPEAKERS)
MAIN
REMOTE
HEADPHONES
MAIN
REMOTE
TONE
LEFT
REC OUT
PLAYBACK
RIGHT
REC OUT
PLAYBACK
REC/PLAY

■ SERVICE AID

At the initial stage of the main amplifier of this unit, the differential amplifier of current mirror load is employed.

This is a circuit for obtaining the gain higher than that in the conventional circuits, with current in the differential amplifier stage kept constant.
when Ic1 is increased through variation of base voltage of the differential amplifier TR1, Ic2 at TR2 is reduced with consequent decrease in the voltage drop at R2, thus resulting in rise or VBE for TR3 and consequent increase of Ic1.
As the characteristics of the differential amplifier, Ic2 is reduced as Ic1 is increased. In this way, Ic1 and Ic2 are kept constant at all times through functioning of TR3.
Constant current means that high impedance is connected to the differential amplifier circuit, and thus large voltage gain can be obtained. Another cause for increasing the voltage gain is the push-pull circuit formed by TR1 and TR3. In the differential amplifier, signal of opposite phase is obtained at the collector of TR1 with respect to the input signal, while in the collector of TR2, signal of the phase as the input is obtained to be further applied to the base of TR3.
Accordingly; signal of opposite phase to the input is developed at the collector of TR3, thus consequently forming the push-pull circuit of TR1 and TR3. In other words, since the amount of NF can be increased with the rise of the gain, improvements in the distortion factor and S/N ratio can be achieved.


⊕VOLTAGE
TR1
TR2
INPUT
INPUT
Ic1
Ic2
OUTPUT
TR3
R2
R1

(CURRENT MIRROR CIRCUIT)

Fig. 1

■ REPLACEMENT PARTS LIST

Important Safety Notice

Components identified by shaded area have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

NOTE: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
		INTEGRATED CIRCUITS		
IC101	AN217-BB	IC, FM IF Amplifier & AM Circuit	1	
IC102	AN377	IC, FM IF Amplifier & Detector	1	
IC301	AN363A	IC, PLL Type FM Multiplex	1	
IC401, 402	SVITA7129P	IC, Equalizer Amplifier	2	
		TRANSISTORS		
TR1	3SK40-M	Transistor (FET), FM RF Amplifier	1	
TR2	**2SC1047-C**	Transistor, FM Mix (Use in ranks C or D)	1	
TR3	2SC1675-L1	Transistor, FM Oscillator	1	
TR101	**2SC1328-T**	Transistor, Muting Switch (Use in ranks S. T or U)	1	
TR301, 302	**2SA902S-F**	Transistor, AF Amplifier (Use in ranks F or G)	2	
TR601, 602	**2SA798A-G2**	Transistor, Differential Amplifier (Use in ranks F2 or G2)	2	
TR603, 604	**2SC1328-T**	Transistor, Current Mirror (Use in ranks S, T or U)	2	
TR605, 606	2SC1940-K	Transistor, Pre Drive Amplifier (Use in ranks K or L)	2	
TR607, 608	**2SC828A-R**	Transistor, Thermo Compensation	2	
TR609, 610	2SC2003-L	Transistor, Drive Amplifier (Use in ranks L or M)	2	○
TR611, 612	2SA954-L	Transistor, Drive Amplifier (Use in ranks L or M) Use pair ranks		
TR613, 614 615, 616	2SD586-R	Transistor, Power Amplifier (Use in ranks Q, R or S)	4	
TR701	**2SC945-R**	Transistor, Regulator (Use in ranks R, P2, Q1 or Q2)	1	
TR702	**2SC1398-Q**	Transistor, Regulator (Use in ranks P, Q or R)	1	
		DIODES		
D101, 103, 204, 205, 301, 601, 602	MA150	Diode, AGC Detector & Current Mirror	7	
D102, 201, 202, 203	2-OA99	Diode, Switching & Detector	4	
D302	LN26D	Light Emitting Diode, Stereo Indicator	1	
D603	SVDMZ322	Zener Diode, 22V	1	
D701	SVDS4VB10	Rectifier	1	
D702	SVD10E1	Rectifier	1	
D703	SVDMZ314	Zener Diode, 14V	1	
		COILS and TRANSFORMERS		
L2	SLA4P25	Antenna Coil, FM	1	
L3	**RLQY25S2**	Coil, Choke	1	
L4	SLD4P13	Coil, Collector (TR1)	1	○
L5	**RLQY15G5**	Coil, Choke	1	
L6	SLO4P31	Oscillator Coil, FM	1	
L101	**SLQX180-1**	Coil, Choke	1	
L201	SLF2D41	Ferrite Antenna Coil, AM	1	
L202	SLO2C3-P	Oscillator Coil, AM	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
L601, 602	SLQY15G-3U	Coil, Compensation	2	○
T101	SLI4D513	IFT, FM Discriminator	1	○
T201	SLI7D101-M	IFT, AM 1st (Except set for [XE])	1	
T201 [XE] only	SLI7D103-M	IFT, AM 1st	1	
T202	RLI2C450	IFT, AM 2nd	1	
T801 [XA, XG, XGH, XGF, XSD, XSW]	SLT5P97-W	Power Transformer	1	○
T801 [XE]	SLT5P99-W	Power Transformer	1	○
T801 [XAL]	SLT5P101-W	Power Transformer	1	○
		CERAMIC FILTERS		
CF101	SVFE107MS8A	Ceramic Filter, 10.7MHz, Red	each 1	
	SVFE107MS8B	Ceramic Filter, 10.67MHz, Blue		
	SVFE107MS8C	Ceramic Filter, 10.73MHz, Orange		
	SVFE107MS8D	Ceramic Filter, 10.64MHz, Black		
	SVFE107MS8E	Ceramic Filter, 10.76MHz, White		
CF102	SVFE107MA8A	Ceramic Filter, 10.7MHz, Red	each 1	
	SVFE107MA8B	Ceramic Filter, 10.67MHz, Blue		
	SVFE107MA8C	Ceramic Filter, 10.73MHz, Orange		
	SVFE107MA8D	Ceramic Filter, 10.64MHz, Black		
	SVFE107MA8E	Ceramic Filter, 10.76MHz, White		
		(Use pair ranks as same as CF101 and CF102)		
		RESISTORS		
R1	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ±5%	1	
R2	**ERD25TJ181**	Carbon, 180Ω, 1/4W, ±5%	1	
R3	**ERD25TJ822**	Carbon, 8.2kΩ, 1/4W, ±5%	1	
R4	**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ±5%	1	
R5	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ±5%	1	
R6	**ERD25TJ471**	Carbon, 470Ω, 1/4W, ±5%	1	
R7	**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ±5%	1	
R8	**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ±5%	1	
R9	**ERD25TJ152**	Carbon, 1.5kΩ, 1/4W, ±5%	1	
R10	**ERD25TJ101**	Carbon, 100Ω, 1/4W, ±5%	1	
R11	**ERD25TJ101**	Carbon, 100Ω, 1/4W, ±5%	1	
R12	**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ±5%	1	
R13	**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ±5%	1	
R14	ERD12TSJ823	Carbon, 82kΩ, 1/2W, ±5% (Except set for [XAL])	1	
R15	ERD12TSJ823	Carbon, 82kΩ, 1/2W, ±5% (Except set for [XAL])	1	
R101	**ERD25TJ821**	Carbon, 820Ω, 1/4W, ±5%	1	
R102	**ERD25TJ331**	Carbon, 330Ω, 1/4W, ±5%	1	
R103	**ERD25TJ331**	Carbon, 330Ω, 1/4W, ±5%	1	
R104	**ERD25TJ271**	Carbon, 270Ω, 1/4W, ±5%	1	
R105	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ±5%	1	
R106	**ERD25TJ222**	Carbon, 2.2kΩ, 1/4W, ±5%	1	
R107	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ±5%	1	
R108	**ERD25TJ101**	Carbon, 100Ω, 1/4W, ±5%	1	
R109	**ERD25TJ562**	Carbon, 5.6kΩ, 1/4W, ±5%	1	
R110	**ERD25TJ822**	Carbon, 8.2kΩ, 1/4W, ±5%	1	
R111	**ERD25TJ181**	Carbon, 180Ω, 1/4W, ±5%	1	
R112	**ERD25TJ392**	Carbon, 3.9kΩ, 1/4W, ±5%	1	
R113	**ERD25TJ274**	Carbon, 270kΩ, 1/4W, ±5%	1	
R114	**ERD25TJ821**	Carbon, 820Ω, 1/4W, ±5%	1	
R115	**ERD25TJ274**	Carbon, 270kΩ, 1/4W, ±5%	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R116	**ERD25TJ274**	Carbon, 270kΩ, 1/4W, ±5%	1	
R117	**ERD25TJ274**	Carbon, 270kΩ, 1/4W, ±5%	1	
R118	**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ±5%	1	
R119	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ±5%	1	
R120	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ±5%	1	
R201	**ERD25TJ152**	Carbon, 1.5kΩ, 1/4W, ±5%	1	
R202	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R203	**ERD25TJ562**	Carbon, 5.6kΩ, 1/4W, ±5%	1	
R204	**ERD25TJ394**	Carbon, 390kΩ, 1/4W, ±5%	1	
R205	**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ±5%	1	
R206	**ERD25TJ471**	Carbon, 470Ω, 1/4W, ±5%	1	
R207	**ERD25TJ272**	Carbon, 2.7kΩ, 1/4W, ±5%	1	
R208	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R209	ERD12FJ102	Carbon, 1kΩ, 1/2W, ±5%	1	
R210	**ERD25TJ331**	Carbon, 330Ω, 1/4W, ±5%	1	
R211	**ERD25TJ824**	Carbon, 820kΩ, 1/4W, ±5%	1	
R212	**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ±5%	1	
R301	**ERD25TJ101**	Carbon, 100Ω, 1/4W, ±5%	1	
R302	**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ±5%	1	
R303	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R304	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R305	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ±5%	1	
R306	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ±5%	1	
R307	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ±5%	1	
R308	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ±5%	1	
R309	**ERD25TJ821**	Carbon, 820Ω, 1/4W, ±5%	1	
R310	**ERD25TJ821**	Carbon, 820Ω, 1/4W, ±5%	1	
R311	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R312	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R313	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ±5%	1	
R314	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ±5%	1	
R315	**ERD25TJ471**	Carbon, 470Ω, 1/4W, ±5%	1	
R316	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ±5%	1	
R317	**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ±5%	1	
R318	**ERD25TJ821**	Carbon, 820Ω, 1/4W, ±5%	1	
R319	**ERD25TJ471**	Carbon, 470Ω, 1/4W, ±5%	1	
R320	**ERD25TJ120**	Carbon, 12Ω, 1/4W, ±5%	1	
R321	**ERD25TJ331**	Carbon, 330Ω, 1/4W, ±5%	1	
R401	ERD12TSJ224	Carbon, 220kΩ, 1/2W, ±5%	1	
R402	ERD12TSJ224	Carbon, 220kΩ, 1/2W, ±5%	1	
R403	**ERD25TJ331**	Carbon, 330Ω, 1/4W, ±5%	1	
R404	**ERD25TJ331**	Carbon, 330Ω, 1/4W, ±5%	1	
R405	**ERD25TJ181**	Carbon, 180Ω, 1/4W, ±5%	1	
R406	**ERD25TJ181**	Carbon, 180Ω, 1/4W, ±5%	1	
R407	**ERD25TJ271**	Carbon, 270Ω, 1/4W, ±5%	1	
R408	**ERD25TJ271**	Carbon, 270Ω, 1/4W, ±5%	1	
R409	ERD12TSJ823	Carbon, 82kΩ, 1/2W, ±5%	1	
R410	ERD12TSJ823	Carbon, 82kΩ, 1/2W, ±5%	1	
R411	**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ±5%	1	
R412	**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ±5%	1	
R413	**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ±5%	1	
R414	**ERD25TJ123**	Carbon, 12kΩ, 1/4W, ±5%	1	
R415	ERD12TSJ274	Carbon, 270kΩ, 1/2W, ±5%	1	
R416	ERD12TSJ274	Carbon, 270kΩ, 1/2W, ±5%	1	
R417	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ±5%	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R418	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ±5%	1	
R419	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ±5%	1	
R420	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ±5%	1	
R501	**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ±5%	1	
R502	**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ±5%	1	
R503	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R504	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ±5%	1	
R505	**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ±5%	1	
R506	**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ±5%	1	
R507	**ERD25TJ682**	Carbon, 6.8kΩ, 1/4W, ±5%	1	
R508	**ERD25TJ682**	Carbon, 6.8kΩ, 1/4W, ±5%	1	
R509	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ±5%	1	
R510	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ±5%	1	
R511	**ERD25TJ122**	Carbon, 1.2kΩ, 1/4W, ±5%	1	
R512	**ERD25TJ122**	Carbon, 1.2kΩ, 1/4W, ±5%	1	
R513	**ERD25TJ392**	Carbon, 3.9kΩ, 1/4W, ±5%	1	
R514	**ERD25TJ392**	Carbon, 3.9kΩ, 1/4W, ±5%	1	
R601	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ±5%	1	
R602	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ±5%	1	
R603	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ±5%	1	
R604	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ±5%	1	
R605	**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ±5%	1	
R606	**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ±5%	1	
R607	**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ±5%	1	
R608	**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ±5%	1	
R609	**ERD25TJ820**	Carbon, 82Ω, 1/4W, ±5%	1	
R610	**ERD25TJ820**	Carbon, 82Ω, 1/4W, ±5%	1	
R611	**ERD25TJ151**	Carbon, 150Ω, 1/4W, ±5%	1	
R612	**ERD25TJ151**	Carbon, 150Ω, 1/4W, ±5%	1	
R613	**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ±5%	1	
R614	**ERD25TJ393**	Carbon, 39kΩ, 1/4W, ±5%	1	
R615	**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ±5%	1	
R616	**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ±5%	1	
R617	ERD12FJ222	Carbon, 2.2kΩ, 1/2W, ±5%	1	
R618	ERD12FJ222	Carbon, 2.2kΩ, 1/2W, ±5%	1	
R619	ERD12FJ182	Carbon, 1.8kΩ, 1/2W, ±5%	1	
R620	ERD12FJ182	Carbon, 1.8kΩ, 1/2W, ±5%	1	
R621	**ERD25TJ272**	Carbon, 2.7kΩ, 1/4W, ±5%	1	
R622	**ERD25TJ272**	Carbon, 2.7kΩ, 1/4W, ±5%	1	
R623	**ERD25TJ391**	Carbon, 390Ω, 1/4W, ±5%	1	
R624	**ERD25TJ391**	Carbon, 390Ω, 1/4W, ±5%	1	
R625	**ERD25TJ391**	Carbon, 390Ω, 1/4W, ±5%	1	
R626	**ERD25TJ391**	Carbon, 390Ω, 1/4W, ±5%	1	
R627	**ERD25TJ152**	Carbon, 1.5kΩ, 1/4W, ±5%	1	
R628	**ERD25TJ152**	Carbon, 1.5kΩ, 1/4W, ±5%	1	
R629	**ERD25TJ100**	Carbon, 10Ω, 1/4W, ±5%	1	
R630	**ERD25TJ100**	Carbon, 10Ω, 1/4W, ±5%	1	
R633	**ERD14FJ5R6**	Carbon, 5.6Ω, 1/4W, ±5%	1	
R634	**ERD14FJ5R6**	Carbon, 5.6Ω, 1/4W, ±5%	1	
R635	**ERD14FJ221**	Carbon, 220Ω, 1/4W, ±5%	1	
R636	**ERD14FJ221**	Carbon, 220Ω, 1/4W, ±5%	1	
R637	**ERD14FJ2R2**	Carbon, 2.2Ω, 1/4W, ±5%	1	
R638	**ERD14FJ2R2**	Carbon, 2.2Ω, 1/4W, ±5%	1	
R639	**ERD14FJ221**	Carbon, 220Ω, 1/4W, ±5%	1	
R640	**ERD14FJ221**	Carbon, 220Ω, 1/4W, ±5%	1	

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
R641	ERF2AKR22	Non-Flammable Wire, 0.22Ω, 2W, ±10%	1		
R642	ERF2AKR22	Non-Flammable Wire, 0.22Ω, 2W, ±10%	1		
R643	ERF2AKR22	Non-Flammable Wire, 0.22Ω, 2W, ±10%	1		
R644	ERF2AKR22	Non-Flammable Wire, 0.22Ω, 2W, ±10%	1		
R645	**ERD25TJ562**	Carbon, 5.6kΩ, 1/4W, ±5%	1		
R646	**ERD25TJ562**	Carbon, 5.6kΩ, 1/4W, ±5%	1		
R647	**ERD14FJ102**	Carbon, 1kΩ, 1/4W, ±5%	1		
R648	**ERD14FJ101**	Carbon, 100Ω, 1/4W, ±5%	1		
R649	ERD12FJ4R7	Carbon, 4.7Ω, 1/2W, ±5%	1		
R650	ERD12FJ4R7	Carbon, 4.7Ω, 1/2W, ±5%	1		
R651	**ERD14FJ561**	Carbon, 560Ω, 1/4W, ±5%	1		
R652	**ERD14FJ561**	Carbon, 560Ω, 1/4W, ±5%	1		
R662	**ERD14FJ470**	Carbon, 47Ω, 1/4W, ±5%	1		
R664	**ERG1ANJ331**	Metal Film, 330Ω, 1W, ±5%	1		
R665	**ERG1ANJ331**	Metal Film, 330Ω, 1W, ±5%	1		
R702	**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ±5%	1		
R703	**ERG3ANJ221**	Metal Film, 220Ω, 3W, ±5%	1		
R704	**ERD14FJ122**	Carbon, 1.2kΩ, 1/4W, ±5%	1		
R705	**ERD25TJ272**	Carbon, 2.7kΩ, 1/4W, ±5%	1		
R706	ERD12FJ102	Carbon, 1kΩ, 1/2W, ±5%	1		
R707	**ERD25TJ120**	Carbon, 12Ω, 1/4W, ±5%	1		
R708	ERD12FJ471	Carbon, 470Ω, 1/2W, ±5%	1		
R709	**ERD25TJ181**	Carbon, 180Ω, 1/4W, ±5%	1		
R711	**ERD18FJ2R2**	Carbon, 2.2Ω, 1/8W, ±5%	1		
R901	**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ±5%	1		
R902	**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ±5%	1		
R903	**ERD25TJ222**	Carbon, 2.2kΩ, 1/4W, ±5%	1		
R904	**ERD25TJ222**	Carbon, 2.2kΩ, 1/4W, ±5%	1		
R905	**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ±5%	1		
R906	**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ±5%	1		
R907	**ERD25TJ472**	Ceramic, 4.7kΩ, 1/4W, ±5%	1		
R908	**ERD25TJ472**	Ceramic, 4.7kΩ, 1/4W, ±5%	1		
R909	**ERD25TJ474**	Ceramic, 470kΩ, 1/4W, ±5%	1		
R910	**ERD25TJ474**	Ceramic, 470kΩ, 1/4W, ±5%	1		
R911	**ERD25TJ104**	Ceramic, 100kΩ, 1/4W, ±5%	1		
R912	**ERD25TJ104**	Ceramic, 100kΩ, 1/4W, ±5%	1		
R913	**ERD25TJ472**	Ceramic, 4.7kΩ, 1/4W, ±5%	1		
R914	**ERD25TJ472**	Ceramic, 4.7kΩ, 1/4W, ±5%	1		

VARIABLE RESISTORS

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
VR1	EWKBJAF25BF5	Volume Control, 250kΩ (B)	1		
VR2	EVHGPAF25G25	Balance Control, 200kΩ (G)	1		
VR3, 4	EWKB9AF25C15	Bass & Treble Control, 100kΩ (C)	2		○
VR101	**EVLT0AA00B35**	Muting Level Adjustment, 300kΩ (B)	1		
VR301	EVTS3MA00B14	PLL VCO Adjustment, 10kΩ (B)	1		
VR302	EVTS3MA00B14	Separation Adjustment, 10kΩ (B)	1		

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
C1	ECCD1H120KC	Ceramic, 12pF, 50V, ±10%	1		
C2	ECCD1H220KC	Ceramic, 22pF, 50V, ±10%	1		
C3	ECCD1H180KR	Ceramic, 18pF, 50V, ±10%	1		
C4	ECKD1H102MDA	Ceramic, 0.001μF, 50V, ±20%	1		
C5	ECCD1H030CC	Ceramic, 3pF, 50V, ±0.25pF	1		
C6	ECCD1H181K	Ceramic, 180pF, 50V, ±10%	1		
C7	ECKD1H103ZF	Ceramic, 0.01μF, 50V, $^{+80}_{-20}$%	1		
C8	ECKD1H103ZF	Ceramic, 0.01μF, 50V, $^{+80}_{-20}$%	1		
C9	ECCD1H0R5CC	Ceramic, 0.5pF, 50V, ±0.25pF	1		
C10	ECCD1H150KS	Ceramic, 15pF, 50V, ±10%	1		
C11	ECCD1H070DC	Ceramic, 7pF, 50V, ±0.5pF	1		
C12	ECCD1H390KC	Ceramic, 39pF, 50V, ±10%	1		
C13	ECCD1H150KC	Ceramic, 15pF, 50V, ±10%	1		
C14	ECKD1H102PF	Ceramic, 0.001μF, 50V, $^{+100}_{-0}$%	1		
C15	ECCD1H050CC	Ceramic, 5pF, 50V, ±0.25pF	1		
C16	ECCD1H150KC	Ceramic, 15pF, 50V, ±10%	1		
C17	ECCD1H150KC	Ceramic, 15pF, 50V, ±10%	1		
C18	ECKD1H102PF	Ceramic, 0.001μF, 50V, $^{+100}_{-0}$%	1		
C19	ECEA16V47	Electrolytic, 47μF, 16V	1		
C20	ECCD1H120KC	Ceramic, 12pF, 50V, ±10%	1		
C21	ECKD1H102PF	Ceramic, 0.001μF, 50V, $^{+100}_{-0}$%	1		
C22 [XAL] only	ECKDHS101MB	Ceramic, 100pF, 400VAC, ±20%	1		
C23 [XAL] only	ECKDHS101MB	Ceramic, 100pF, 400VAC, ±20%	1		
C101	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C102	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C103	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C104	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C105	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C106	ECEA50V3R3	Electrolytic, 3.3μF, 50V	1		
C107	ECCD1H680K	Ceramic, 68pF, 50V, ±10%	1		
C108	ECEA50V1	Electrolytic, 1μF, 50V	1		
C109	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C110	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C111	ECEA16V10	Electrolytic, 10μF, 16V	1		
C112	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C114	ECKD1H103PF	Ceramic, 0.01μF, 50V, $^{+100}_{-0}$%	1		
C115	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C116	ECEA50VR47	Electrolytic, 0.47μF, 50V	1		
C201	ECKD1H103PF	Ceramic, 0.01μF, 50V, $^{+100}_{-0}$%	1		
C202	ECKD1H103MD	Ceramic, 0.01μF, 50V, ±20%	1		
C203	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C204	ECKD1H103PF	Ceramic, 0.01μF, 50V, $^{+100}_{-0}$%	1		
C205	ECKD1H103PF	Ceramic, 0.01μF, 50V, $^{+100}_{-0}$%	1		
C206	ECEA50V3R3	Electrolytic, 3.3μF, 50V	1		
C207	ECCD1H560K	Ceramic, 56pF, 50V, ±10%	1		
C208	ECEA50VR47	Electrolytic, 0.47μF, 50V	1		
C209	ECKD1H103PF	Ceramic, 0.01μF, 50V, $^{+100}_{-0}$%	1		
C210	ECKD1H103MD	Ceramic, 0.01μF, 50V, ±20%	1		
C211	ECQM1H223KZ	Polyester, 0.022μF, 50V, ±10%	1		
C212	**ECEA6V220V**	Electrolytic, 220μF, 6.3V	1		
C213	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1		
C214 [XAL] only	ECKDHS102MD	Ceramic, 0.001μF, 400VAC, ±20%	1		
C301	ECQM1H153JZ	Polyester, 0.015μF, 50V, ±5%	1		
C302	ECQM1H153JZ	Polyester, 0.015μF, 50V, ±5%	1		
C303	ECQM1H332KZ	Polyester, 0.0033μF, 50V, ±10%	1		
C304	ECQM1H332KZ	Polyester, 0.0033μF, 50V, ±10%	1		
C305	ECKD1H391KB	Ceramic, 390pF, 50V, ±10%	1		
C306	ECKD1H391KB	Ceramic, 390pF, 50V, ±10%	1		
C307	ECQM1H272KZ	Polyester, 0.0027μF, 50V, ±10%	1		
C308	ECQM1H272KZ	Polyester, 0.0027μF, 50V, ±10%	1		
C309	**ECEA50ZR22**	Electrolytic, 0.22μF, 50V	1		
C310	**ECEA50ZR22**	Electrolytic, 0.22μF, 50V	1		

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C311	**ECEA16V100V**	Electrolytic, 100μF, 16V	1	
C312	**ECEA16V220V**	Electrolytic, 220μF, 16V	1	
C313	ECEA50MR47R	Electrolytic, 0.47μF, 50V	1	
C314	ECEA50VR47	Electrolytic, 0.47μF, 50V	1	
C315	ECEA50VR47	Electrolytic, 0.47μF, 50V	1	
C316	ECQS05471JZ	Polystyrene, 470pF, 50V, ±5%	1	
C317	ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%	1	
C318	ECEA50V3R3	Electrolytic, 3.3μF, 50V	1	
C319	**ECEA16V470V**	Electrolytic, 470μF, 16V	1	
C320	ECKD1H103PF	Ceramic, 0.01μF, 50V, $^{+100}_{-0}$%	1	
C401	ECCD1H680K	Ceramic, 68pF, 50V, ±10%	1	
C402	ECCD1H680K	Ceramic, 68pF, 50V, ±10%	1	
C403	ECCD1H151K	Ceramic, 150pF, 50V, ±10%	1	
C404	ECCD1H151K	Ceramic, 150pF, 50V, ±10%	1	
C405	ECEA50M3R3R	Electrolytic, 3.3μF, 50V	1	
C406	ECEA50M3R3R	Electrolytic, 3.3μF, 50V	1	
C407	ECKD1H681KB	Ceramic, 680pF, 50V, ±10%	1	
C408	ECKD1H681KB	Ceramic, 680pF, 50V, ±10%	1	
C409	ECEA10V47	Electrolytic, 47μF, 10V	1	
C410	ECEA10V47	Electrolytic, 47μF, 10V	1	
C411	ECQM1H223JZ	Polyester, 0.022μF, 50V, ±5%	1	
C412	ECQM1H223JZ	Polyester, 0.022μF, 50V, ±5%	1	
C413	ECQM1H562JZ	Polyester, 0.0056μF, 50V, ±5%	1	
C414	ECQM1H562JZ	Polyester, 0.0056μF, 50V, ±5%	1	
C415	ECKD1H681KB	Ceramic, 680pF, 50V, ±10%	1	
C416	ECKD1H681KB	Ceramic, 680pF, 50V, ±10%	1	
C417	ECEA50MR47R	Electrolytic, 0.47μF, 50V	1	
C418	ECEA50MR47R	Electrolytic, 0.47μF, 50V	1	
C419	**ECEA50V220V**	Electrolytic, 220μF, 50V	1	
C421	ECKD1H681KB	Ceramic, 680pF, 50V, ±10%	1	
C422	ECKD1H681KB	Ceramic, 680pF, 50V, ±10%	1	
C501	ECQM1H123KZ	Polyester, 0.012μF, 50V, ±10%	1	
C502	ECQM1H123KZ	Polyester, 0.012μF, 50V, ±10%	1	
C503	ECQM1H683KZ	Polyester, 0.068μF, 50V, ±10%	1	
C504	ECQM1H683KZ	Polyester, 0.068μF, 50V, ±10%	1	
C505	ECQM1H152KZ	Polyester, 0.0015μF, 50V, ±10%	1	
C506	ECQM1H152KZ	Polyester, 0.0015μF, 50V, ±10%	1	
C507	ECQM1H223KZ	Polyester, 0.022μF, 50V, ±10%	1	
C508	ECQM1H223KZ	Polyester, 0.022μF, 50V, ±10%	1	
C601	ECEA50M1R	Electrolytic, 1μF, 50V	1	
C602	ECEA50M1R	Electrolytic, 1μF, 50V	1	
C603	ECCD1H330K	Ceramic, 33pF, 50V, ±10%	1	
C604	ECCD1H330K	Ceramic, 33pF, 50V, ±10%	1	
C605	ECCD1H030C	Ceramic, 3pF, 50V, ±0.25pF	1	
C606	ECCD1H030C	Ceramic, 3pF, 50V, ±0.25pF	1	
C607	ECEA6V47	Electrolytic, 47μF, 6.3V	1	
C608	ECEA6V47	Electrolytic, 47μF, 6.3V	1	
C609	ECEA6V47	Electrolytic, 47μF, 6.3V	1	
C610	ECEA6V47	Electrolytic, 47μF, 6.3V	1	
C611	ECEA25V10	Electrolytic, 10μF, 25V	1	
C612	ECEA25V10	Electrolytic, 10μF, 25V	1	
C613	ECCD2H390K	Ceramic, 39pF, 500V, ±10%	1	
C614	ECCD2H390K	Ceramic, 39pF, 500V, ±10%	1	
C619	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1	
C620	ECKD1H223PF	Ceramic, 0.022μF, 50V, $^{+100}_{-0}$%	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C621	ECCD2H470K	Ceramic, 47pF, 500V, ±10%	1	
C622	ECCD2H470K	Ceramic, 47pF, 500V, ±10%	1	
C623	ECQM1H683KZ	Polyester, 0.068μF, 50V, ±10%	1	
C624	ECQM1H683KZ	Polyester, 0.068μF, 50V, ±10%	1	
C625	**ECEA35V220V**	Electrolytic, 220μF, 35V	1	
C626	**ECEA35V220V**	Electrolytic, 220μF, 35V	1	
C627	ECCD1H101K	Ceramic, 100pF, 50V, ±10%	1	
C628	ECCD1H101K	Ceramic, 100pF, 50V, ±10%	1	
C629	ECEA25V4R7	Electrolytic, 4.7μF, 25V	1	
C701	ECET35R6800S	Electrolytic, 6800μF, 35V	1	
C702	ECET35R6800S	Electrolytic, 6800μF, 35V	1	
C703	ECKD2H103PF	Ceramic, 0.01μF, 500V, $^{+100}_{-0}$%	1	
C704	**ECEA50V470V**	Electrolytic, 470μF, 50V	1	
C705	**ECEA50V220V**	Electrolytic, 220μF, 50V	1	
C706	ECKD1H103PF	Ceramic, 0.01μF, 50V, $^{+100}_{-0}$%	1	
C707	ECKD1H103PF	Ceramic, 0.01μF, 50V, $^{+100}_{-0}$%	1	
C708	**ECEA35V100V**	Electrolytic, 100μF, 35V	1	
C709	ECKD1H103PF	Ceramic, 0.01μF, 50V, $^{+100}_{-0}$%	1	
C710	**ECEA16V100V**	Electrolytic, 100μF, 16V	1	
C901	ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%	1	
C902	ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%	1	

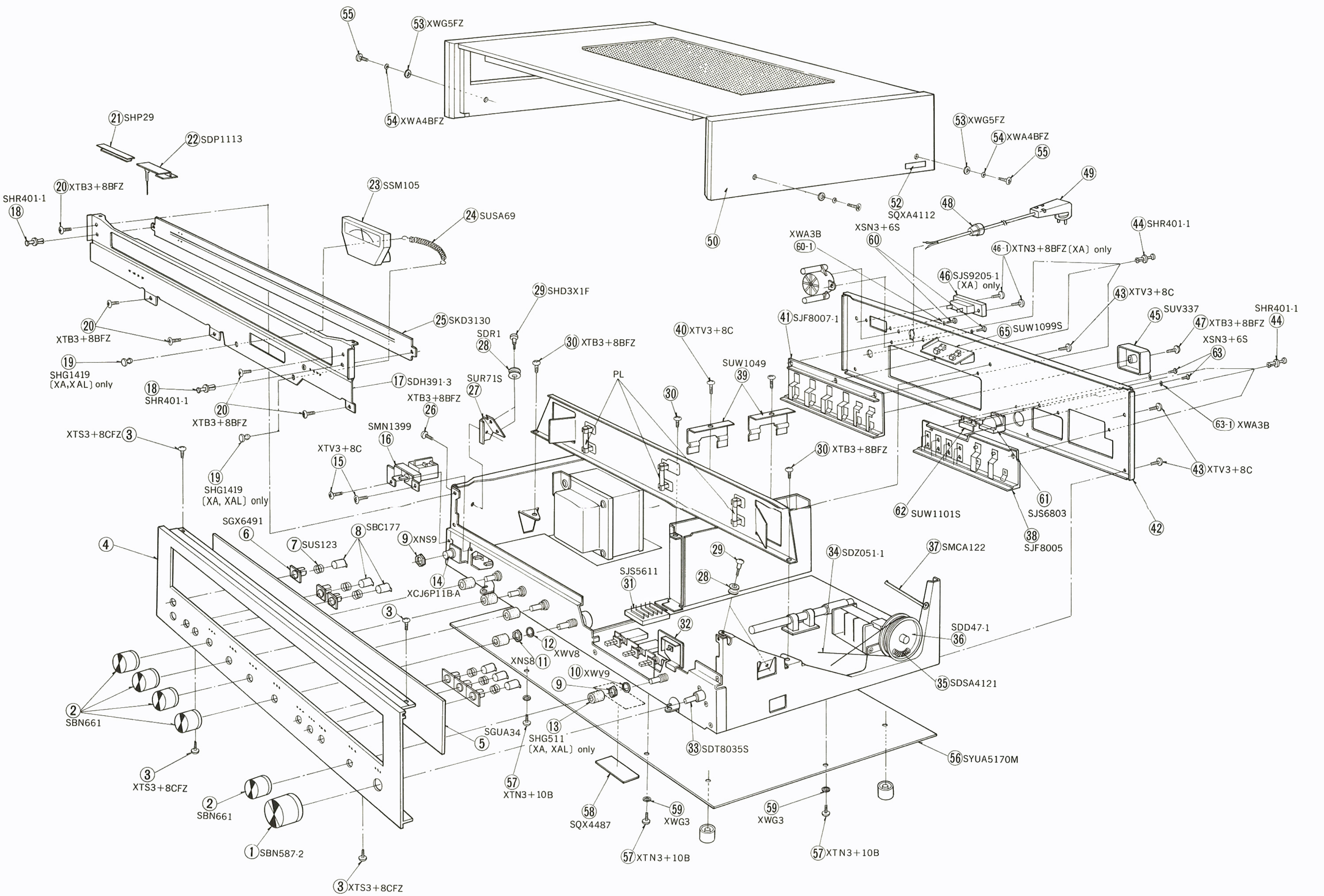
VARIABLE CAPACITOR

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
CV1 ~ 5 (CT1 ~ 5)	ECVC751K144A	Tuning Capacitor with Trimmer	1	

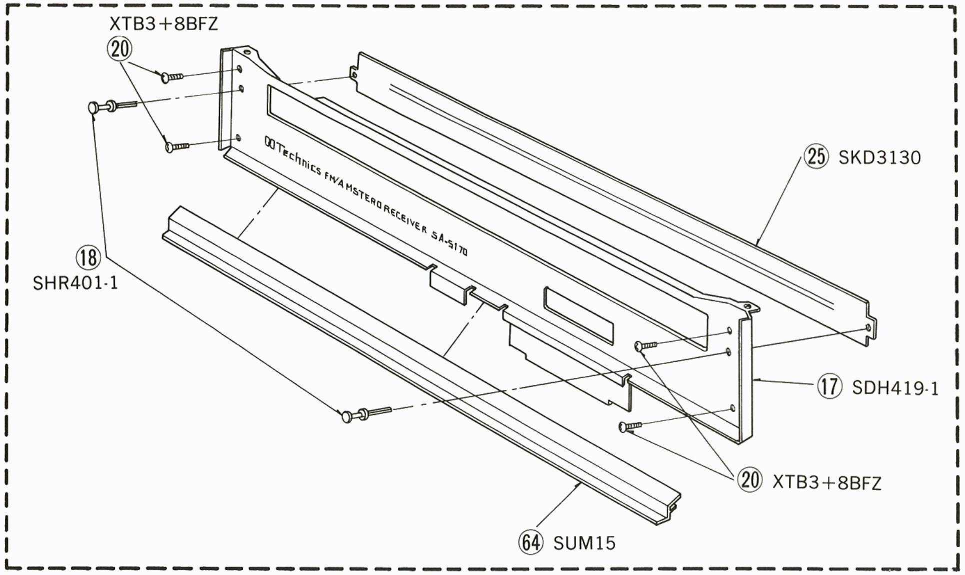
CABINET and CHASSIS PARTS

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
1	SBN587-2	Knob, Tuning Control	1	○
2	SBN661	Knob, Bass, Treble, Balance, Volume Control & Selector Switch	5	○
3	XTS3+8CFZ	Screw, Front Panel M'tg	4	
4 [XA, XAL]	SGW8210	Panel, Front	1	○
4	SGW90A	Panel, Front (Except set for [XA, XAL])	1	○
5	SGUA34	Glass Plate, Front Panel	1	
6	SGX6491	Escutcheon, Push Switch Button	6	○
7	SUS123	Spring, Push Switch Button	6	
8	SBC177	Button, Push Switch	6	○
9	XNS9	Nut, Headphones Jack & Selector Switch	2	
10	XWV9	Washer Spring, Selector Switch	1	
11	XNS8	Nut, Tone, Balance & Volume Control	4	
12	XWV8	Washer Spring, Tone, Balance, Volume Control	4	
13 [XA, XAL] only	SHG511	Bracket, Volume Shaft	5	
14	XCJ6P11B-A	Jack, Headphones	1	
15	XTV3+8C	Screw, Power Switch Brakcet M'tg	2	
16	SMN1399	Bracket, Power Switch	1	∗○
17 [XA, XAL]	SDH391-3	Plate, Dial Light	1	∗○
17 [XG, XHG, XGF, XSD, XSW, XE]	SDH419-1	Plate, Dial Light (Except set for [XA, XAL])	1	∗○
18	SHR401-1	Lock Pin, Dial Scale	2	
19 [XA, XAL] only	SHG1419	Clip, Meter Spring	2	○
20	XTB3+8BFZ	Screw, Dial Light Plate M'tg	5	

■ EXPLODED VIEWS

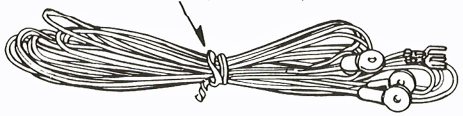

55
53 XWG5FZ
54 XWA4BFZ
21 SHP29
22 SDP1113
20 XTB3+8BFZ
SHR401-1
18
23 SSM105
24 SUSA69
53 XWG5FZ
54 XWA4BFZ
55
49
52
SQXA4112
48
50
XWA3B
60-1
XSN3+6S
60
44 SHR401-1
46-1 XTN3+8BFZ (XA) only
46 SJS9205-1
(XA) only
43 XTV3+8C
45 SUV337
47 XTB3+8BFZ
SHR401-1
44
XSN3+6S
63
29 SHD3X1F
25 SKD3130
20
XTB3+8BFZ
SDR1
28
30 XTB3+8BFZ
40 XTV3+8C
41 SJF8007-1
65 SUW1099S
SUW1049
39
19
SHG1419
(XA, XAL) only
18
SHR401-1
17 SDH391-3
SUR71S
27
PL
XTB3+8BFZ
26
20
XTB3+8BFZ
30
SMN1399
16
XTS3+8CFZ 3
XTV3+8C
15
30 XTB3+8BFZ
63-1 XWA3B
43 XTV3+8C
19
SHG1419
(XA, XAL) only
SGX6491
6
8 SBC177
9 XNS9
7 SUS123
4
62 SUW1101S
61
SJS6803
38
SJF8005
42
14
XCJ6P11B-A
3
29
28
SJS5611
31
34 SDZ051-1
37 SMCA122
SDD47-1
36
32
12
XWV8
XNS8 11
10 XWV9
9
35 SDSA4121
2
SBN661
13
SGUA34
5
SHG511
(XA, XAL) only
33 SDT8035S
56 SYUA5170M
3
XTS3+8CFZ
57
XTN3+10B
2
SBN661
58
SQX4487
59
XWG3
59
XWG3
57 XTN3+10B
57 XTN3+10B
1 SBN587-2
3 XTS3+8CFZ

Available in 〔XG, XGH, XGF, XSD, XSW, XE〕

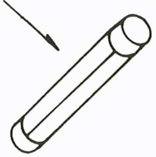


■ ACCESSORIES

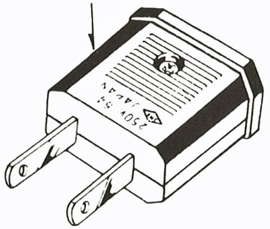
A1 (SSA251)



A2 (XBA2C25SS0)

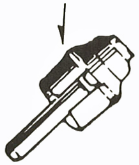


A3 (SJP5213)



(only set for [XA])

A4 (PJP5)



Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
21	SHP29	Paper, Pointer Slide	1	○
22	SDP1113	Pointer, Dial	1	∗○
23	SSM105	Meter, FM Tuning & AM Signal	1	○
24	SUSA69	Spring, Meter	1	
25	SKD3130	Scale, Dial	1	∗○
26	XTB3+8BFZ	Screw, Pulley Bracket M'tg	1	
27	SUR71S	Bracket, Pulley	1	
28	SDR1	Pulley, Dial	4	
29	SHD3X1F	Screw, Pulley M'tg	4	∗○
30	XTB3+8BFZ	Screw, Reflector Plate M'tg	3	
31	SJS5611	Connector, 6 pin	1	
32	SMN1511	Bracket, LED (Except set for [XA, XAL])	1	∗○
32 [XA, XAL]	SMN1401	Bracket, LED	1	∗○
33	SDT8035S	Shaft, Tuning Control Ass'y	1	∗○
34	SDZ051-1	Cord, Dial 70-15/16" (180cm)	1 roll	
35	SDSA4121	Spring, Dial Cord	1	
36	SDD47-1	Drum, Dial Cord	1	
37	SMCA122	Clamp, Lead Wire	1	∗
38	SJF8005	Terminal, Inputs & Antennas	1	○
39	SUW1049	Bracket, Power Transistor	2	∗○
40	XTV3+8C	Screw, Power Transistor Bracket M'tg	2	
41	SJF8007-1	Terminal, Speaker	1	○
42 [XA]	SGP610-1A	Rear Panel	1	○
42 [XG, XGH, XGF]	SGP810 A	Rear Panel	1	○
42 [XSD, XSW]	SGPA5170D	Rear Panel, SGP810A with Name Plate (SGT13910)	1	○
42 [XE]	SGPA5170E	Rear Panel, SGP810A with Name Plate (SGT13870)	1	○
42 [XAL]	SGPA5170L	Rear Panel, SGP610-2A with Name Plate (SGT13950)	1	○
43	XTV3+8C	Screw, Rear Panel M'tg	7	
44	SHR401-1	Lock Pin, Input, Antenna & Speaker Terminal	6	
45	SUV337	Cover, Circuit Protection Fuse	1	∗
46 [XA] only	SJS9205-1	Socket, AC Outlet	1	
46-1 [XA] only	XTN3+8BFZ	Screw, AC Outlet Socket M'tg	2	
47	XTB3+8BFZ	Screw, Fuse Cover M'tg	1	
48 [XA, XG, XGH, XGF, XSD, XSW]	SHR127	Bushing, AC Cord	1	
48 [XE]	SHR129	Bushing, AC Cord	1	
48 [XAL]	SHR131	Bushing, AC Cord	1	
49 [XA, XG, XGF]	SJA95	AC Cord, with Plug	1	
49 [XGH, XSD]	SJA81	AC Cord, with Plug	1	
49 [XSW]	**SJA68**	AC Cord, with Plug	1	
49 [XE]	SJA99	AC Cord	1	
49 [XAL]	SJA79	AC Cord, with Plug	1	
50 [XA, XAL]	SKA9050W	Cabinet, Brown Wooden	1	○
50 [XE]	SKA9331W	Cabinet Brown Wooden	1	○
50 [XG, XGH, XGF, XSD, XSW]	SKA9330W	Cabinet, Black	1	○
52	SQXA4112	Coution Label, Cabinet Screw (Except set for [XAL])	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
53	XWG5FZ	Washer, Cabinet Screw	4	
54	XWA4BFZ	Spring Washer, Cabinet Screw	4	
55	XTB4+12FFZ	Screw, Cabinet M'tg (Except set for [XA, XAL])	1	
55 [XA, XAL]	XTB4+35FFZ	Screw, Cabinet M'tg	4	
56	SYUA5170M	Bottom Board with feet Ass'y	1	*○
57	XTN3+10B	Screw, Bottom Board M'tg	8	
58	SQX4487	Caution Label, Bottom Board	1	
59	XWG3	Washer, Bottom Board	8	
60	XSN3+6S	Screw, Voltage Selector Switch M'tg (Except set for [XAL])	2	
60-1	XWA3B	Spring Washer, Voltage Selector Switch Screw (Except set for [XAL])	2	
61	SJS6803	Socket, Tape Deck Connection (DIN)	1	
62	SUW1101S	Bracket, Tape Deck Connection Socket	1	○
63	XSN3+6S	Screw, Tape Deck Connection Socket Bracket M'tg	2	
63-1	XWA3B	Spring Washer, DIN Socket. Bracket Screw	2	
64	SUM15	Cover, Dial Light Plate (Except set for [XA, XAL])	1	○
65	SUW1099S	Bracket, Speaker Fuse Printed Circuit Board	1	

LAMPS

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
PL1, 2, 3	XAMR54T	Lamp, Dial Light (12.6V 0.38A)	3	

FUSES

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
F1	XBA2C10TRO	Fuse, 1AT (250V), Power Source	1	
F2	XBA2C20TRO	Fuse, 2AT (250V), Power Source	1	
F3	XBA2C10TRO	Fuse, 1AT (250V), Power Source	1	
F4	XBA2C20TRO	Fuse, 2AT (250V), Power Source (Except set for [XE, XAL])	1	
F601, 602	XBA2C25SSO	Fuse, 2.5A (250V), Circuit Protection	1	

COMPONENT COMBINATIONS

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
Z701, 702	RXAF103P22HD	Component Combination, 0.01μF (X2)	2	

SWITCHES

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
S1	SSR67	Switch, Selector	1	○
S2, 3, 4	SSH313S-V	Switch, Muting, Tape & Loudness	1	
S5, 6	SSH223S	Switch, Main & Remote Speaker	1	
S7	ESB7075	Switch, Power Source (Except set for [XAL])	1	
S7 [XAL] only	ESB7083	Switch, Power Source	1	
S8-1, 8-2	SSR53S	Switch, Voltage Selector (Except set for [XE, XAL])	1	
S8-1, 8-2 [XE] only	SSR53S-1S	Switch, Voltage Selector	1	

ACCESSORIES

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
A1	SSA251	Cord, FM Feeder Antenna	1	
A2	XBA2C25SSO	Fuse, 2.5A (250V), Circuit Protection	2	
A3 [XA] only	SJP5213	Plug Adaptor, AC Power	1	
A4	RJP5	Pin Plug	4	

PACKING PARTS

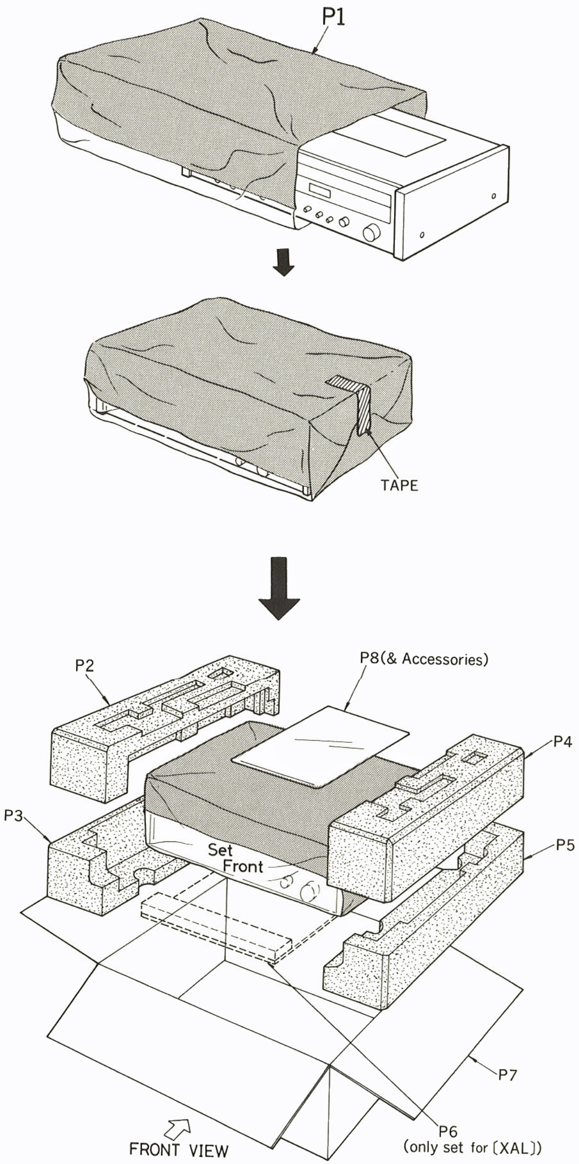
Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
P1	SPP495	Soft Cover, (Except set for [XA, XAL])	1	
P1 [XA, XAL]	SPP511	Soft Cover	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
P2	SPS1039	Pad, Left Side, Upper (Except set for [XA, XAL])	1	○
P2 [XA, XAL]	SPS893	Pad, Left Side, Upper	1	○
P3 [XA, XAL]	SPS891	Pad, Left Side, Lower	1	○
P3 [XGH, XSD, XSW]	SPS1037	Pad, Left Side, Lower	1	○
P3 [XG, XGF, XE]	SPS1045	Pad, Left Side, Lower	1	○
P4	SPS1043	Pad, Right Side, Upper (Except set for [XA, XAL])	1	○
P4 [XA, XAL]	SPS897	Pad, Right Side, Upper	1	○
P5 [XA, XAL]	SPS895	Pad, Right Side, Lower	1	
P5 [XG, XGF, XE]	SPS1047	Pad, Right Side, Lower	1	○
P5 [XGH, XSD, XSW]	SPS1041	Pad, Right Side, Lower	1	○
P6 [XAL] only	SPS1049	Pad, Bottom Side	1	○
P7 [XA]	SPG1101	Carton Box	1	○
P7 [XAL]	SPG1103	Carton Box	1	○
P7 [XG]	SPG1105	Carton Box	1	○
P7 [XGF]	SPG1107	Carton Box	1	○
P7 [XE]	SPG1109	Carton Box	1	○
P7 [XGH, XSD, XSW]	SPG1111	Carton Box	1	○
P8 [XG, XGH, XGF, XSD, XSW, XE]	SQF1599	Printed Matter, Instructions Book	1	○
P8 [XAL]	SQF1605	Printed Matter, Instructions Book	1	○
P8 [XA]	SQF1603	Printed Matter, Instructions Book	1	○

NOTE:

- * The model [XA] is available in Asia, Latin America, Middle East and Africa.
- * The model [XAL] is available in Australia only.
- * The model [XG] is available in Europen only.
- * The model [XGH] is available in Holland only.
- * The model [XSD] is available in Scandinavia only.
- * The model [XSW] is available in Switzerland only.
- * The model [XE] is available in England only.
- * The model [XGF] is available in France only.

■ PACKINGS



SA-5170K

(XG), (XGH), (XGF), (XSD), (XSW)

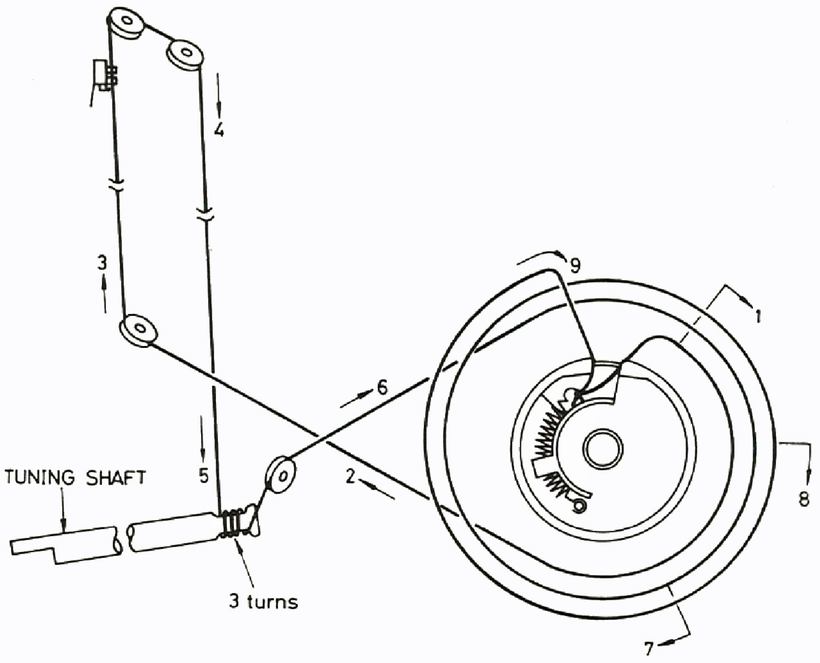
- * This parts list includes only the changes of the SA-5170 (XG), (XGH), (XGF), (XSD), (XSW) parts list.
- * When servicing model SA-5170K, this parts list and SA-5170 (XG), (XGH), (XGF), (XSD), (XSW) parts list should be used together.

■ CHANGE OF PARTS FROM SA-5170 (XG, XGH, XGF, XSD and XSW)

Ref. No.	Change of Part No.		Part Name & Description	Per Set	Remarks
	SA-5170 ➡	**SA-5170K**			
		Transformer			
T801	SLT5P97-W SLT5P99-W [XE] SLT5P101-W [XAL]	SLT5P97-W	Power Transformer	1	
		Switches			
S7	ESB7075 ESB7083 [XAL]	ESB7075	Switch, Power Source	1	
S8-1,8-2	SSR53S SSR53-1S [XE]	SSR53S	Switch, Voltage Selector	1	
		Cabinet and Chassis Parts			
1	SBN587-2	SBN587-1	Knob, Tuning Control	1	○
2	SBN661	SBN589	Knob, Bass, Treble, Balance, Volume & Selector		○
4	SGW90A SGW8210 [XA, XAL]	SGW90B	Panel, Front	1	○
17	SDH419-1 SDH391-3 [XA, XAL]	SDH419-2	Plate, Dial Light	1	○
32	SMN1511 SMN1401 [XA, XAL]	SMN1511	Bracket, Light Emitting Diode	1	
42	SGP610-1A [XA] SGP810A [XG,XGH,XGF] SGPA5170D [XSD, XSW] SGPA5170E [XE] SPGA5170L [XAL]	SGP810B [XG, XGF, XGH]	Rear Panel (Products for [XG], [XGH] and [XGF] only)	1	○
		SGPA5170KD [XSD, XSW]	Rear Panel, SGP810B with Name Plate (SGT14790) (Products for [XG], [XGH] and [XGF] only)	1	○
48	SHR127 SHR129 [XE] SHR131 [XAL]	SHR127	Bushing, AC Cord	1	
49	SJA95 [XA, XG, XGF] SJA81 [XGH, XSD] **SJA68** [XSW] SJA99 [XE] SJA79 [XAL]	SJA95 [XG, XGF]	AC Cord, Power Source (Products for [XG] and [XGF] only)	1	
		SJA81 [XGH, XSD]	AC Cord, Power Source (Products for [XGH], [XSD] only)	1	
		SJA68 [XSW]	AC Cord, Power Source (Product for [XSW] only)	1	
50	SKA9050W [XA, XAL] SKA9331W [XE] SKA9330W	SKA9330W	Cabinet, Black	1	

■ DIAL CORD INSTALLATION GUIDE

1. Dial cord length is 180cm (70-15/16").
2. Tuning gang is positioned at maximum capacity. (Frequency is minimum)
3. Arrow marks (1 ~ 9) indicated correct order and direction of stringing dial cord.



TUNING SHAFT
3 turns
1
2
3
4
5
6
7
8
9

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